

ARCHAEOLOGICAL EXCAVATIONS AT RAUPA: THE 1987 SEASON

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Abstract. Excavations at Raupa, near Paeroa, were undertaken to salvage some information before the site was destroyed in the course of flood control work by the Hauraki Catchment Board. The first of two seasons work in 1987 and 1988 is reported here. Raupa is a swamp pa of the Hauraki Plains. It is similar in location and environment to Oruarangi, a site which has been important in New Zealand archaeology because of the great number of artefacts found there and the use of resulting collections in describing the material culture of the 'classic Maori'.

The 1987 excavations were directed to outlining the internal arrangement of the Raupa settlement and locating one of the large houses described by the Rev. Samuel Marsden during his visit of June 1820. A large house was found along with cooking and waste disposal areas, a rectangular storage pit and a variety of fences, stockades and roofed structures. Obsidian and chert was abundant, artefacts included adzes and adze pieces, kokowai grinding stones, patu muka and patu onewa pieces, a pumice pot and bone needle, also fishhook, bird spear and tattoo chisel fragments. A hoanga fragment was incised with a simple design reminiscent of facial tattoo.

In January and February 1987 and again in early 1988 archaeological excavations were carried out at Raupa (T13/13, formerly N53/37) on the left bank of the Ohinemuri River near Paeroa (Fig. 1). The site is one of a small group of pa, or defended settlements, which occupied low lying riverbank ground isolated and protected within the formerly vast and encompassing swamp of the Hauraki Plains. Among similar sites is Oruarangi which is of importance in New Zealand archaeology for the great variety and abundance of artefacts found there, and for the conclusions drawn from this assemblage regarding the nature of 'classic Maori' material culture (Golson 1959; Green 1963:77-81).

Excavations at Raupa were undertaken partly to investigate the nature of that particular site and partly also to learn more about Hauraki Plains swamp pa as a whole. The results of the first season's work, 12 January — 21 February 1987, are reported here.

History

Little is known of the history of Raupa. Kelly (1945:210) reports a traditional account of Te Kahureremoa who spent a night at Raupa, "as early as A.D. 1600". The settlement at the junction of the Waihou and Ohinemuri River comes suddenly into

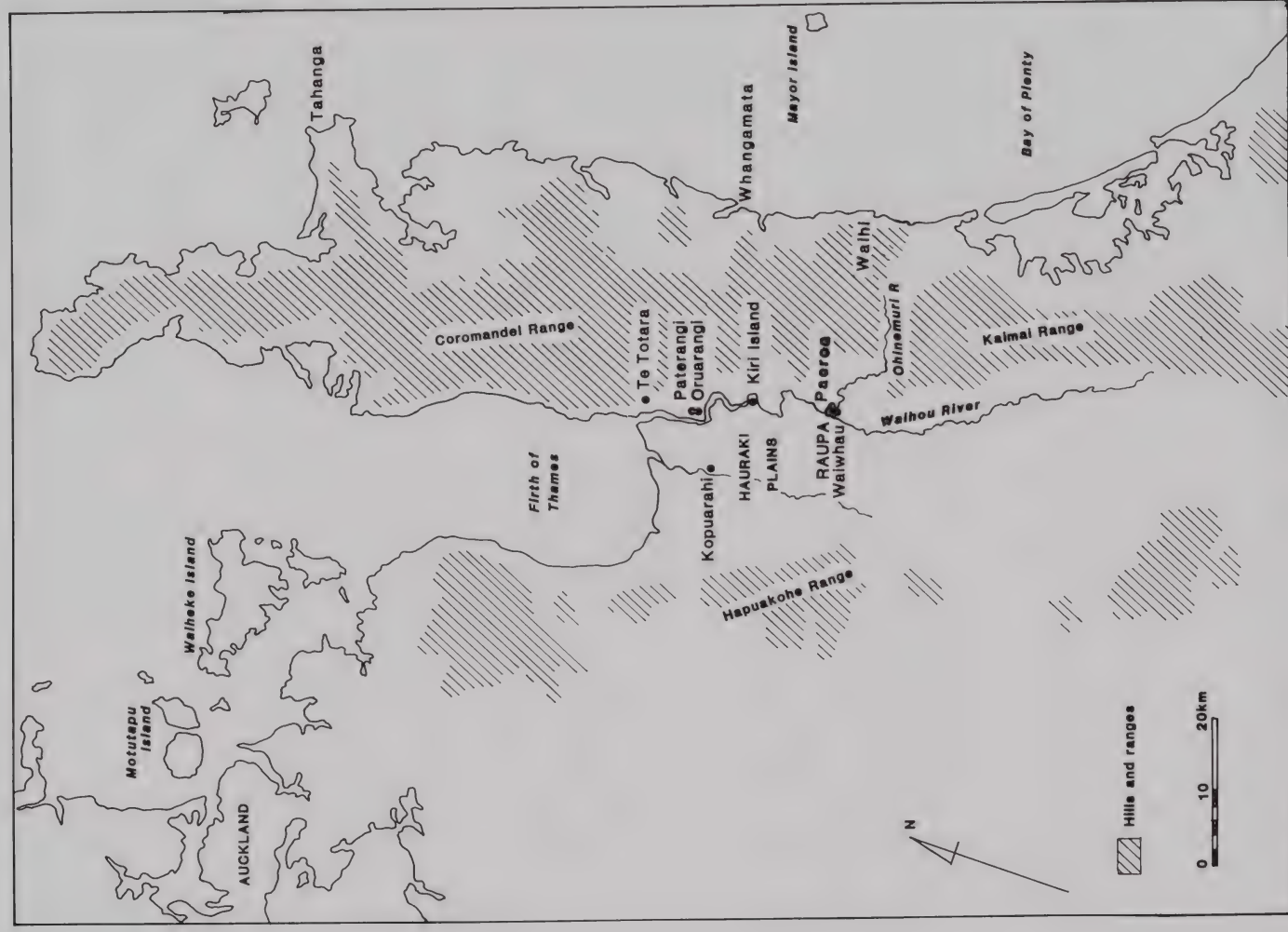


Fig. 1. Location map.

the glare of recorded history when Samuel Marsden visited in the winter of 1820 in the course of one of his missionary journeys in the northern North Island.

Marsden's invaluable record helped direct the 1987-88 excavations and played an important role in interpretation. The relevant part is given here in full.

"June 17th. — The following morning we proceeded up the river in the launch with a fair wind and tide. The two chiefs accompanied us and about fifty of their people in canoes. Mr. Hume, the surgeon of the *Coromandel*, the carpenter, and the captain's clerk were also of the party. We had a very fine day, and arrived in the evening at a settlement called Kowpah, situated at the junction of two fresh-water rivers whose united streams form the Thames.

On a point of high land where the two streams meet, and by which it is surrounded, stands the hippah of the head chief or areekee (*ariki*) as the natives call him. The hippah was very full of people, who welcomed us on shore with loud acclamations and conducted us to the areekee who was seated in the midst of his family. He was an old man, apparently not far from seventy years of age, well made and of great muscular strength. His mother was still alive with three generations by her. The natives' houses here were much larger and better built than any I had seen in New Zealand. The areekee appropriated one for us, which afforded lodging to us and the fifty natives who had attended the launch up the river."

(Elder 1932:255)

The next day being Sunday Marsden and his party rested.

"On the following morning (Monday, June 19th) Mr. Anderson went to examine the spars in the neighbourhood, and I got a canoe with some natives and proceeded up the left river; the land on the banks was very rich, and here and there adorned with lofty pines; some small farms were cultivated for potatoes, upon which the poor slaves were at work.

The tide runs a few miles up this river, and when we had proceeded about ten or twelve miles, in which space the water was close confined by thick wood on high banks, it opened into a plain and became shallow, and, as night was coming on, I returned to the hippah."

(Elder 1932:256)

Raupa was a pa of the Ngati Tamatera tribe. At the time of Marsden's visit the countryside was unsettled by threats from the Nga Puhi and their allies and Raupa may also have provided a refuge for sections of other Hauraki tribes as well. The Ngati Tamatera chief at the fortified settlement in 1820 was Te Hikamate (Kelly 1945:207). The two chiefs who accompanied Marsden up the river were Te Puhi of Te Totara (near Thames) and the Ngati Whanaunga chief Te Horeta.

Only 18 months after Marsden's visit Te Totara was taken with great loss of life by Nga Puhi from the Bay of Islands district. Shortly afterwards the northern tribe pushed up the Waihou River and a fight is said to have taken place at Raupa. "Maeae and Toea, chiefs of Ngapuhi were killed. Ngapuhi fled" (Rihitoto 1893:111). In November 1833, the missionary Henry Williams called at the old pa and noted that there was, "No one here, nor any fences up to indicate a Fortress" (Rogers 1961:346), suggesting that there was nonetheless a settlement, unoccupied at the time, which would have required defences if the district was as unsettled as formerly.

Environment

Raupa occupied a narrow point of land at the confluence of the Waihou and Ohinemuri Rivers near the eastern margin of the Hauraki Plains (Fig. 1). The plains extend approximately 40 km north-south and as much as 25 km east-west. Close to the west and east margins the Piako and Waihou Rivers meander slowly to the sea. The Waihou is joined by several major tributaries flowing from the Coromandel and Kaimai ranges to the east. Notable among these is the Ohinemuri which drains an extensive basin east of the ranges before cutting through by way of the narrow Karangahake Gorge then winding its way across the Hauraki Plains to join the Waihou.

The two rivers no longer meet at the Raupa site. Early this century the Waihou was straightened by way of a canal to cut off the bend which formerly looped eastward to the old confluence with the Ohinemuri. Today, only the Ohinemuri flows past the site, joining the larger river some 2.5 km downstream. The old Waihou channel is marked by willows and occasional shallow ponds as it wanders over farm land west of the Raupa site.

The Hauraki Plains even today are not fully drained. Low lying and subject to flood and tidal influence the plain was formerly a vast swamp of raupo, flax, and stands of tall kahikatea. The latter were probably concentrated on natural levees which flanked the major rivers. An 1884 map (Anon. 1884) which includes the Waihou-Ohinemuri junction shows a large patch of bush between the two rivers narrowing along the right bank of the Waihou to the south where it is backed by an extensive swamp reaching almost to the foot of the hills which border the plain.

Raupa is approximately 40 km from the sea by the winding course of the river. Even at this distance the tidal flow is considerable and the rise and fall of the river next to the site is as much as 1.5 m.

East of the site some 2.5 km (8-10 km by the Ohinemuri River) rise the foothills of the ranges which bound the west side of the plain. These stand 500 m above sea level in the vicinity of the site and as much as 950 m at Mount Te Aroha 20 km south. Some of this hill country is now cleared of bush for pastoral farming. Most of the remainder has been logged for kauri and other valued timber trees. At the time Raupa was occupied the ranges were covered in forest dominated by kauri, here approaching the southern limit of its range.

The environment of the Raupa site was rich and productive for the Ngati Tamatera people living there. The river brought fish including mullet, kahawai, eels, lamprey and whitebait to the pa. The wetlands of the vast swamp were a rich habitat for duck and other waterbirds. Above the water-table the natural levees and other higher ground provided rich soil for food crops, notably kumara but probably also the newly introduced potato, sweet corn, melon and other vegetables at the time of Marsden's passage in 1820. Harakeke (flax) which was valued for making items from the finest cloaks to the most everyday food baskets and other mundane items, and raupo for thatching and other purposes, were available in great abundance. Timber trees for the construction of houses and pa defences and for fashioning a vast range of objects both aesthetic and utilitarian were available at hand or in the ranges nearby.

In the ranges but not on the wet plain was kauri (*Agathis australis*), perhaps the most valued of all timber for houses, canoes and very many smaller objects. There were also pigeons (*Hemiphaga novaeseelandiae*), tui (*Prosthemadera novaeseelandiae*), kaka (*Nestor meridionalis*), kiwi (*Apteryx* spp.) and other birds hunted in season for food. Also in the hills were stone materials which included obsidian at the nearby Waihi source, chert and kokowai. Necessary oven stones were available from the bed of the Ohinemuri River where it cuts through the ranges, and were easily transported to Raupa by canoe.

Also accessible by canoe was the Firth of Thames with its extensive fishing grounds, and soft and rocky shore shellfish resources. Maori canoe travellers could take advantage of outgoing and incoming tides to get to and from the sea.

Archaeology

Archaeological interest in Raupa might be said to have begun with the surveyor Courtney Kenny from whom we have a sketch plan of remains visible in 1893, published by Kelly in 1945. Kelly himself visited in July 1945 and noted a considerable deterioration of the site since Kenny's time, not helped by the construction of a stopbank across the old pa and an immense quantity of rock-flour from gold mining operations in the Karangahake Gorge which overlay a wide area in this part of the Hauraki Plains (Kelly 1945).

The Raupa site was recorded in the New Zealand Archaeological Association site record scheme in 1963 by Roger Green who located the site from Kelly's article. In the same year it is shown on a map which illustrates a summary article listing Hauraki material culture by Roger and Kaye Green (1963:29).

In 1983 Raupa and the neighbouring site of Waiwhau were relocated by Simon Best in the course of a survey undertaken for the Hauraki Catchment Board as major new stopbank construction and flood control measures were being carried out. Archaeological evidence now took the form of scatters of shell, ovenstones and patches of black soil turned up by motor-scrapers gathering fill for the greatly enlarged stopbank nearby. A large part of what was being taken was rock-flour which overlay the site. At the north end of the old pa, however, the site was cut down as much as 2 m, entirely removing the occupation surfaces and almost reaching the base of three major defensive ditches lined up across the narrow neck of the former river bend (see Fig. 2). Altogether something in excess of half that part of the site which survived the considerable river erosion of the previous 150 years has since been destroyed by river control works.

In addition to the Raupa site itself Best records signs of Maori occupation at the Waiwhau site on the opposite (south) bank of old Waihou River channel (Fig. 2). This site too was severely damaged by earthworks.

Best arranged for machine trenching of both sites, partly for accurate location of intact archaeological deposits and partly for stratigraphic information. The sections revealed in these trenches were subsequently recorded and drawn up by Joan Maingay and Rosemary Taiaroa of the New Zealand Historic Places Trust, Auckland (see Phillips 1986:94).

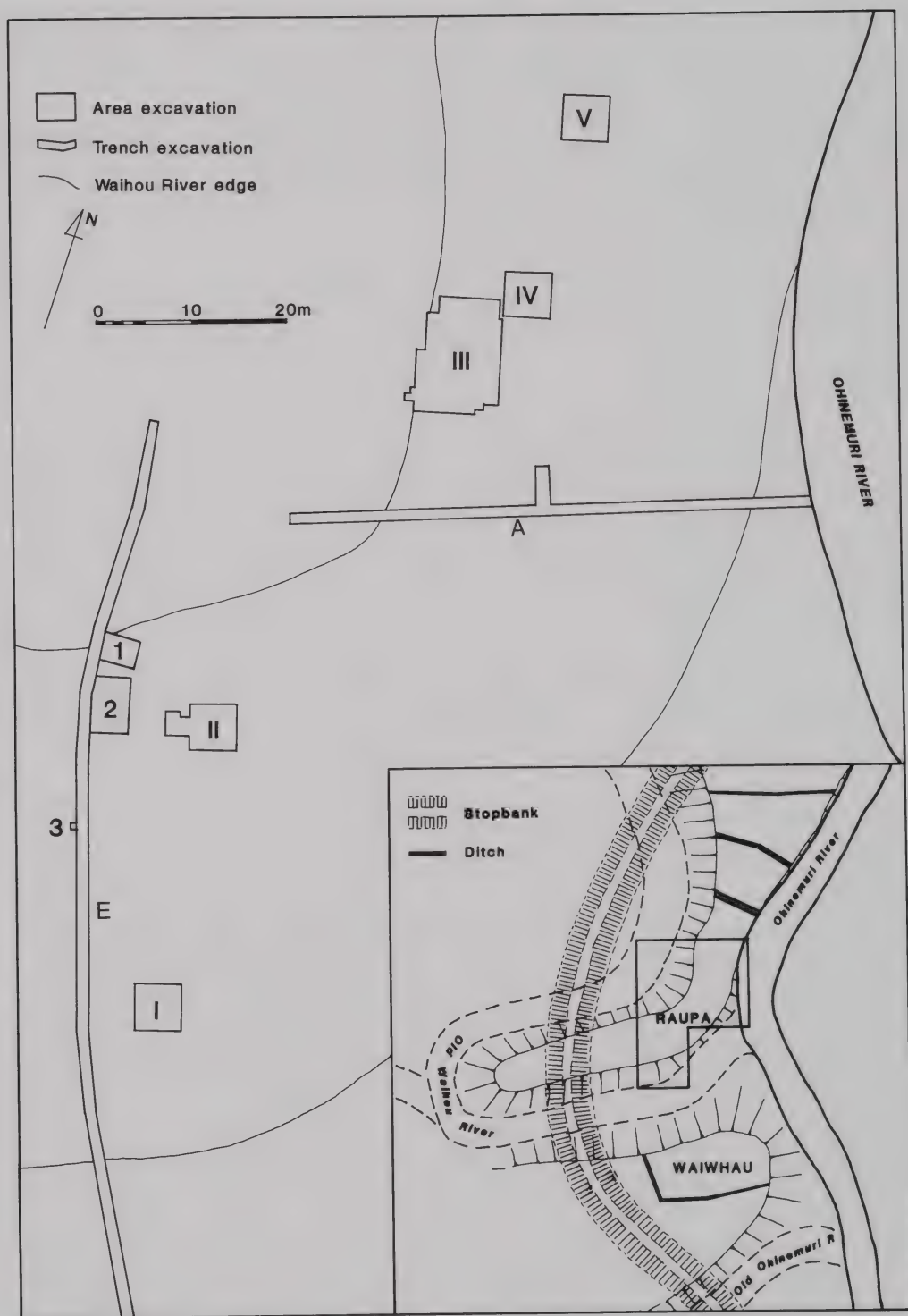


Fig. 2. The Raupa site showing Areas I-V excavated in 1987 and Trenches A and E.

When the Hauraki Catchment Board applied for and received from the Historic Places Trust an authority to destroy the remainder of the two sites an investigation was hurriedly organised to recover some information before the sites were lost. A two week excavation directed by Caroline Phillips took place in February 1984 (Phillips 1986). It was understood that the sites would soon after be destroyed by the Catchment Board works.

The 1984 strategy involved further machine trenching and limited hand excavation to gain as much information as possible regarding the extent and stratigraphy of both sites and the location and nature of the defensive ditches at the north end of Raupa, and to identify internal structures and activity areas (Phillips 1986:89). The invaluable results of the work were quickly published and have acted as a fundamental resource for the present work.

Two years after the 1984 excavations it became clear that progress on Catchment Board work was slower than had been anticipated. The opportunity therefore arose for further work on the Raupa and Waiwhau sites, to build on the results of 1984, and to ask further questions of the two sites in particular and of the important class of sites which they represent in general.

Excavations at Raupa in 1987 and 1988 were funded by the New Zealand Historic Places Trust with equipment and other support from the Anthropology Department, University of Auckland, and the Auckland Museum. At the same time two shorter excavation seasons were devoted to the neighbouring Waiwhau site by the university Anthropology Department which ran the work as a field school in excavation method for senior students. The 1987 Waiwhau work has been reported separately (Phillips 1988).

The research context

The swamp pa of the eastern Hauraki Plains hold an important place in the study of New Zealand archaeology. From the 1930s to the 1960s collectors dug on these sites, most notably at Oruarangi, attracted by the well known abundance and variety of artefacts. The method was quick and unscientific and it need hardly be said that little was discovered of the history of the sites, or indeed of the collections which were recovered. There were nonetheless some valuable descriptions published of material which found its way into the Auckland Museum (Fisher 1934, 1935, 1936, 1937) and Otago Museum (Teviotdale & Skinner 1947) respectively, the latter also including a brief discussion of archaeological context.

More importantly, the considerable Oruarangi collection was basic to Golson's 1959 definition of 'classic Maori' material culture. From the published museum collections Golson listed Oruarangi patu, fishhooks, ornaments, musical instruments and other items which he argued to be characteristic of classic Maori as a whole. Four years later Green argued for the importance of Hauraki Plains material as "... one of the best documented regional collections ever assembled for North Island aspects of the Classic and Early European Maori phases" (Green 1963:79). He went on to suggest a cultural sequence for which casual finds and excavations alike point strongly to

relatively late settlement of the wet and lowlying plains. In the same year Green & Green (1963) presented a valuable list of finds for the Oruarangi, Paterangi, Kiri Island and Kopuarahi swamp pa (Fig. 1).

Green & Green (1963:29-30) also gave a brief account of stratigraphy at Oruarangi as revealed by test excavations carried out by Golson in the mid-1950s. Shawcross & Terrell (1966) reported their test trenches at the neighbouring Paterangi site but remained pessimistic on the prospect of providing a satisfactory context or sequence for artefact collections from the Hauraki Plains sites. They also expressed concern that uncontrolled collections from the Oruarangi site which may have been occupied for as much as 300 years were used by Golson to define a "Classic Maori Phase" (Shawcross & Terrell 1966:408).

In 1980 Best published a major review of work done on the Oruarangi site and collections. Test excavations were carried out at Oruarangi and Paterangi. A date of 450 ± 80 B.P. was obtained from charcoal recovered from Oruarangi to suggest an initial occupation in the 15th or 16th century (S. Best 1980:73). A survey of the lower Waihou River area put the site into its geographic and settlement pattern context.

The 1984 excavations at Raupa and Waiwhau obtained useful results, especially concerning the extent of the sites, their general stratigraphy and similarities with Oruarangi and other Hauraki sites both in stratigraphy and artefact finds (Phillips 1986). Phillips argued that a central area of Raupa may have been artificially raised by shell deposits in much the same way as Nichol (1980) has demonstrated for Oruarangi. Evidence for built wooden structures was found as well as a possible bell-shaped storage pit (Phillips 1986:102, 104).

It is impossible to escape the shadow of Oruarangi when working on swamp pa in the Hauraki Plains, and indeed the many unanswered questions about that site provided major research objectives for the 1987-88 Raupa excavations. In the first instance it was hoped to recover sufficient artefacts from secure archaeological contexts at Raupa to help make sense of the Oruarangi and other Hauraki Plains assemblages. Secondly, the lack of information from these sites on internal settlement organisation, dwellings, food storage and other structures needed to be redressed. Thirdly, any addition to economic information must be useful as little has been published from the Hauraki sites on this present central concern of New Zealand archaeology, probably because the enormous artefact collections have been of such compelling interest.

As well as general questions of Hauraki Plains swamp pa as a whole, Raupa also has particular interest. Marsden's record of houses, "... much larger and better built than any I had seen in New Zealand" (Elder 1932:255) pointed to the prospect of important architectural information. The antiquity of settlement at the Waihou-Ohinemuri junction and the archaeological manifestation of early European contact in the region should also be of interest. Raupa is a large site of approximately two hectares which Marsden's journal shows to have been a major settlement in the early 19th century: it deserves interpretation on its own account and not simply to make sense of other sites and collections however important.

THE 1987 EXCAVATION

Much of the Raupa site has already been lost to natural erosion or river control earthworks so that large parts of the former settlement are no longer open to investigation. What remains, however, includes the central part of the old pa which might be expected to be as important historically and complex archaeologically as any part of the site. A particular objective of the 1987 work was the location of one or more of the large houses which so impressed Marsden. These would have been important in the social and economic life of the settlement and are thus likely to have been located in the central part of the pa, the very part now available for excavation.

Work began with the stripping of rock flour and other over-burden from selected parts of the site by grader. Excavation areas were then laid out on a compass bearing of 345° which was roughly aligned to the long Trench E dug through the south-west end of the surviving site in 1984 (Phillips 1986:101). Areas I and II were opened up just east of Trench E and Areas III and IV north of the transverse 1983 Trench A (see Fig. 2). None of the excavated areas was marked by any surface indication of what might lie beneath. In the following account of the excavation the stratigraphy, occupational sequence, structural features, midden, artefactual finds and waste stone material are described in turn for each of the five excavated areas.

The excavation strategy was aimed initially at finding out as much as possible about the arrangement of settlement across the site. Four exploratory squares of 5 x 5 m (Areas I — IV) were opened up to examine different parts of the site with a fifth (Area V) begun later. The 25 m² areas it was hoped would be large enough to allow interpretation of any buildings or other structures found and would direct the extension of one or more of the squares as seemed fruitful. In the event a total of 213.35 m² was excavated although not everywhere was the bottom of the site reached.

AREA I (Figs. 2,3-11)

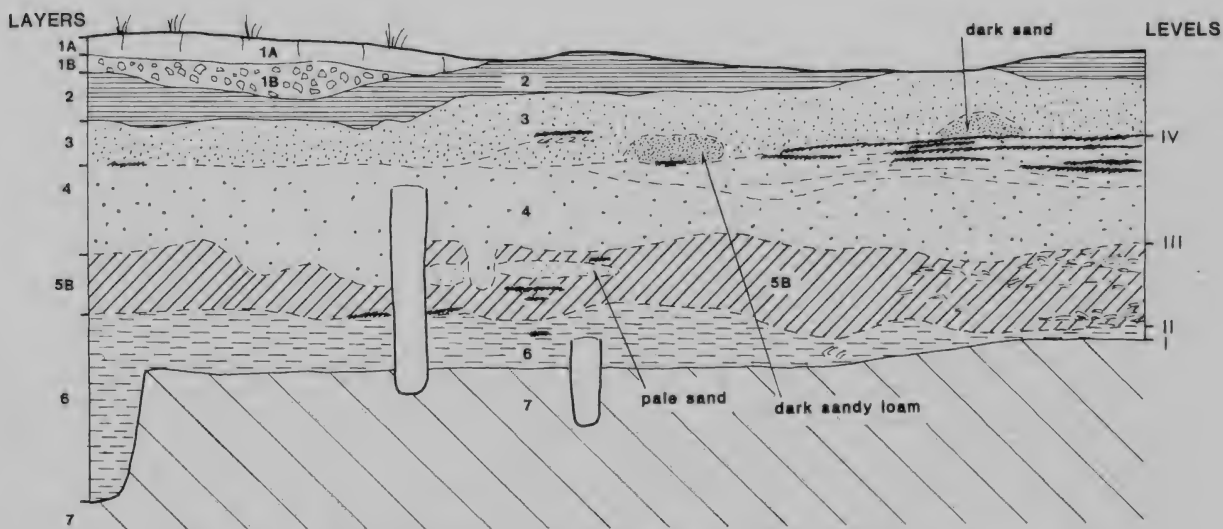
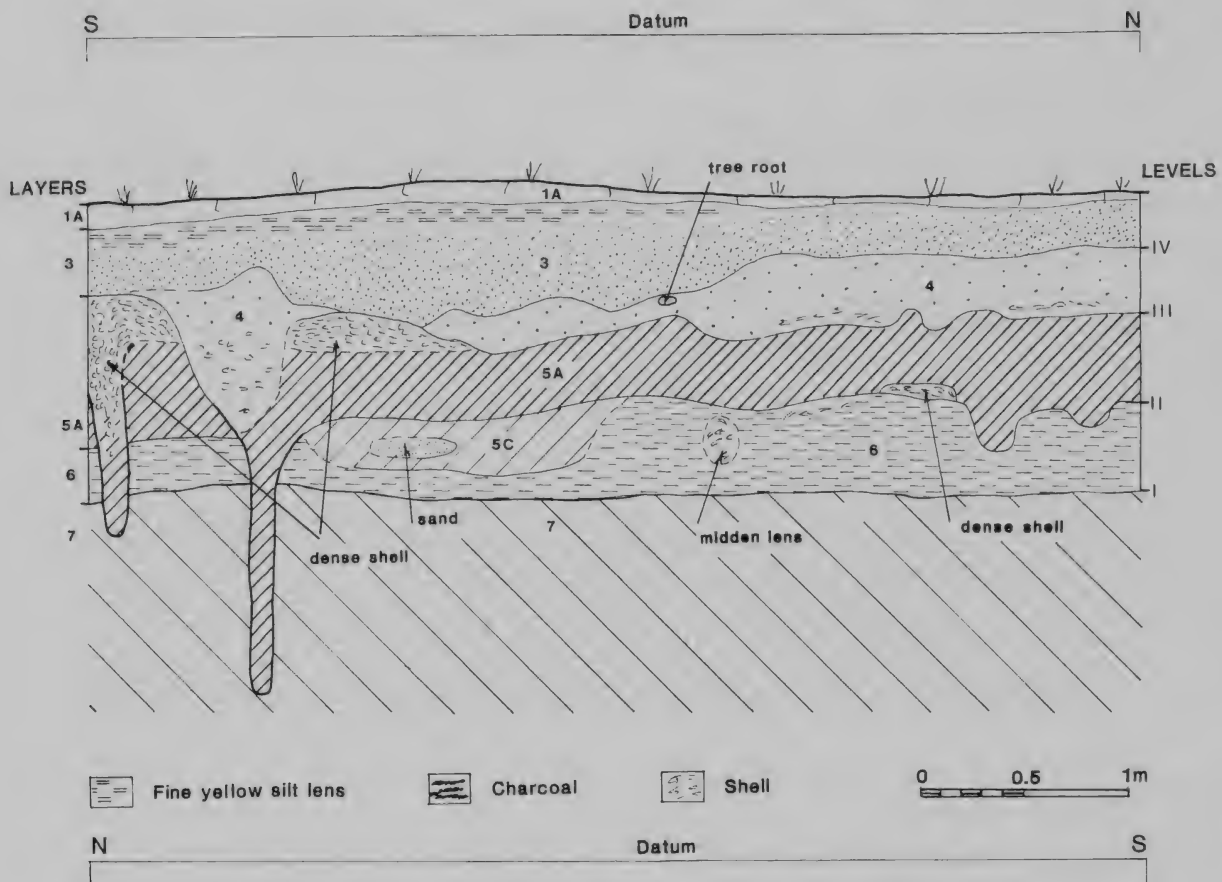
Area I was located at the south-west corner of the site, *ca.* 10 m from the former Waihou River channel and 5 m from Trench E (Fig. 2). Black soil and a considerable shell lens revealed by the nearby trench (see Phillips 1986: Fig. 10) suggested this part of the site may have been used for cooking and waste disposal. It was likely also that the area would prove to have deeper archaeological deposits than elsewhere as here the ground dips away to the old river channel which confines the site.

Stratigraphy

Archaeological deposits in Area I were 700-800 mm deep. Six layers were identified along with many minor lenses of material (Figs. 3,4). Four major occupation episodes were identified. Stratigraphic layers were as follows.

Layer 1A. Surface mixed and redeposited silt and rock flour.

Layer 1B. Blue-grey clay rubble from access road put across the Raupa site to assist the 1980 Catchment Board work (see Phillips 1986:98-99, 102). North-east corner of square only.



Figs. 3,4. Area I stratigraphical sections. 3. West section (above). 4 East section (below).
Layer descriptions in text.

- Layer 2. Compacted yellow rock flour from goldmining quartz crushing operations in Karangahake Gorge, late 19th-early 20th century. No more than 100 mm deep. East part of square only. Over the west side it had been entirely taken off, probably during the wholesale removal of overlying silt for stop bank fill in 1980.
- Layer 3. Yellow-brown silt and sandy clay loam, 50-300 mm deep, including some fine silt lenses near the top at the west side of the square (Fig. 3).
- Layer 4. Sandy loam. This layer was variable in colour; predominantly grey-brown at the west side of the excavated square and yellow-brown to the east. The colour variation depends partly upon the presence or absence of very dense black shell midden immediately beneath. At the south-east corner three narrow charcoal bands separated by thin sand lenses were clearly water-laid (Fig. 4). After the abandonment of the Raupa settlement a tree grew on the north-west quarter of Area I. Its root system broke up and raised the midden deposit (Layer 5A), and when it died its decayed roots left holes and tunnels in Layers 4 and 5 in this part of the square.
- Layer 5A. Midden in black sandy silt matrix, as much as 300 mm deep. In places the predominantly shell midden is densely packed indicating primary deposition, elsewhere it is crushed and thoroughly mixed with the black sandy soil. Charcoal is common.
- Layer 5B. At the east side of the square Layer 5 was present, not as a dense midden layer but as a black sandy layer with some distinctive lenses of charcoal and shell at the south end of the section (Fig. 4,6).
- Layer 6. Yellow-brown sandy or silty clay with plentiful charcoal especially at the west side of the excavated area; scattered shell and sand lenses in places.
- Layer 7. Yellow-brown silty clay loam; the unmodified base of the site.

The occupation sequence

Four major occupation episodes are represented in Area I. Many lenses and thin laminations in some parts of the square represent particular events and the passage of time.

Level I. The first occupation is represented by a scatter of post and stake holes found in the two 5 x 1 m strips excavated at the east and west sides of the area (Figs. 7,8). The excavated areas are too small to reveal any pattern except that there is a concentration of small stake holes at both sides of the Area I square. These are distinguished by small circumference, relatively shallow depth and often by a pointed base to the surviving stake hole. There is a suggestion at the south end of the east strip that some of these holes line up with the much more apparent structures of Level II (see Figs. 7,9). Only one posthole contained wood fragments: in this instance identified as kauri.

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Fig. 5. Area I. West section, 13 February 1987.

Fig. 6. Area I. East section, 19 February 1987.

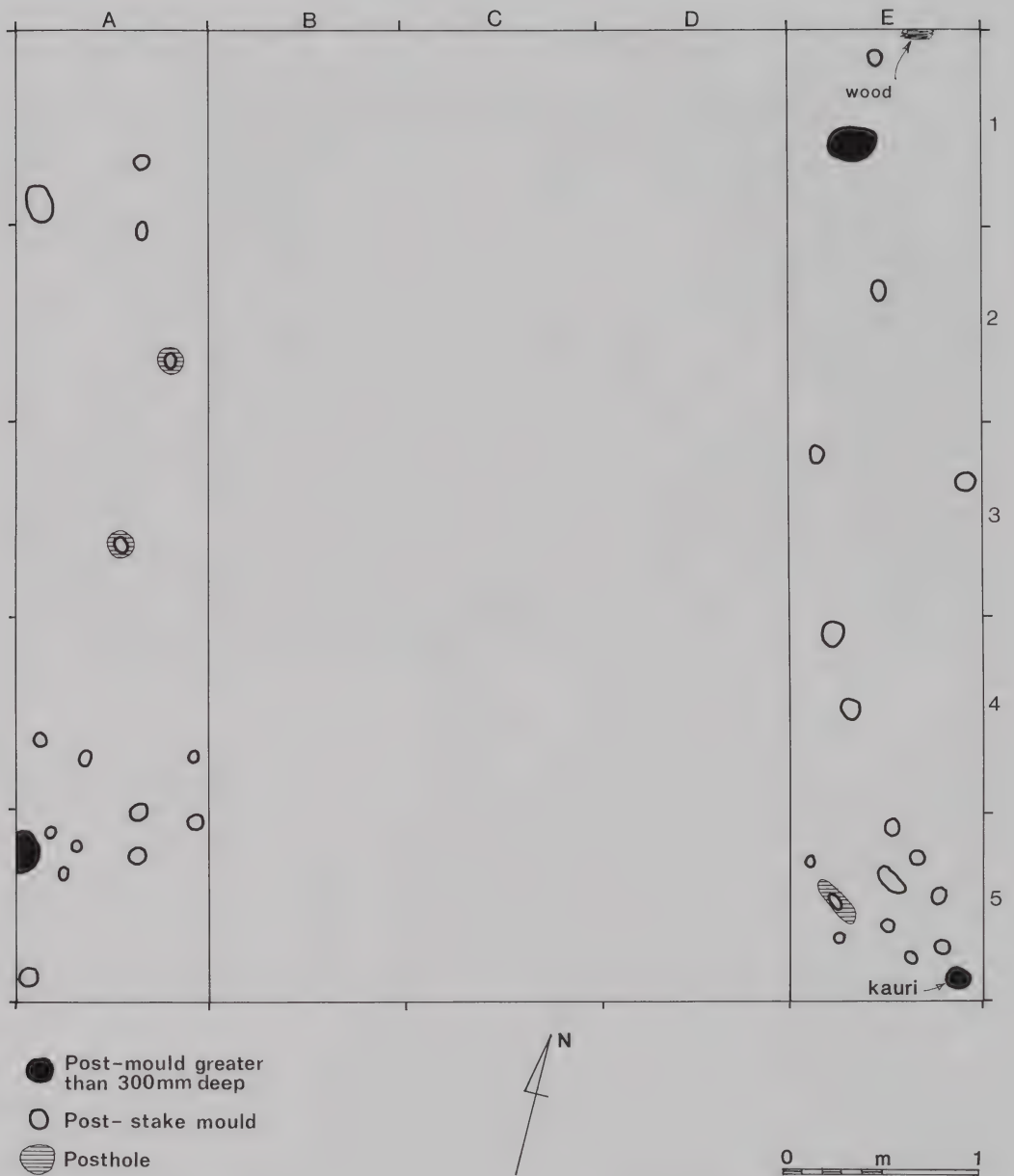


Fig. 7. Area I. Level I plan.

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Fig. 8. Area I. Level I, 13 February 1987. View to north.

Level II. Approximately 90 post and stake holes in the Level II surface (Figs. 9,10) indicate a number of wooden structures, probably including some demolition and replacement over the occupation period. At the south-west part of the square close-set lines of large post-holes suggest a strongly built rectangular structure. This is highly visible in Fig. 9 where postholes of greater than 300 mm depth are emphasised. There is more than one explanation for this pattern. The postholes may mark a roofed structure, much or most of which lies outside Area I to the south-west, or they may relate to the line of post and stake holes and shallow trenches which extends across the square to exit at the north-west corner.

The rectangular structure includes three matai (*Prumnopitys taxifolia*) posts (Fig. 9) in holes of (north to south) 300 mm, 500 mm and 550 mm depth respectively. Clearly there was a very strong structure here. Extending north-west/south-east are two lines of deep postholes and one or two lines of stake holes. There was some use of matai in the Area III house (discussed below), although kauri was the predominant building timber. The lack of kauri in Area I does suggest that it is not a dwelling that is represented here. Added to this is the conspicuous lack of obsidian and other stone material which so often marks the floor of Maori dwellings.

A line of shallow depressions and postholes extends through the rectangular structure to the north-west corner of the square. This offers an explanation alternative to there having been a roofed building here. If the line represents a fence or light palisade it may have been straddled at this point by a lookout or fighting platform set on matai posts a few metres from the bank of the Waihou River.

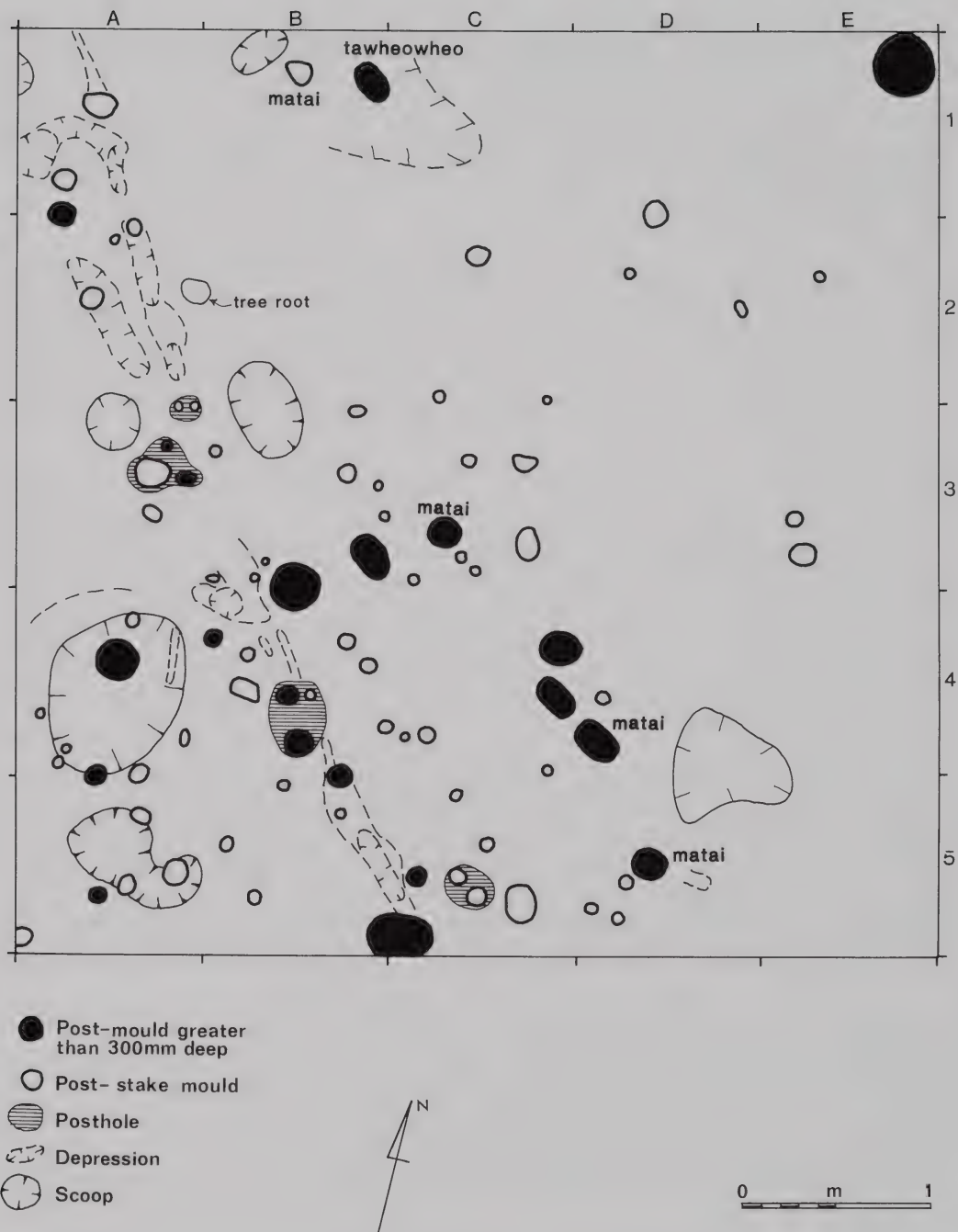


Fig. 9. Area I. Level II plan.

A massive posthole 450 mm deep at the north-east corner of the square probably relates to more outside. Between this post and the large number which fill the west half of Area I is a gap of some three metres which may indicate a passage from the riverbank into the settlement, or simply an unbuilt area or open ground. The posthole with tawheowheo (*Quintinia serrata*) timber in it near the north baulk is 440 mm in depth and is thus deep set for strength. The adjacent matai post is set 290 mm in the ground and may be part of the same structure.

Level III. The third occupation period at Area I is represented by the Layer 5A midden and associated Layer 5B (Fig. 11). This was as much as 300 mm deep at the west (Figs. 3,5) but dips to the east, virtually disappearing halfway across the 5 m square where it is represented stratigraphically by Layer 5B (see Fig. 8). In Layer 5B at the east side of the excavated area some scattered shell visible at the south end of the section is part of the debris of the Layer 5 occupation. There were two or three isolated postholes on the surface (Fig. 11).

The Layer 4 midden was predominantly shell, the shell itself being at least 90% pipi (*Paphies australis*). Cockle (*Chione stutchburyi*) made up the bulk of the remaining 10%, with mussel (*Perna canaliculus*), scallop (*Pecten novaezelandiae*), *Dosinia anus*, *Thais orbita*, *Cominella adspersa*, *Umbonium zelandicum* and a possible *Rissoa miniscula* also present. Most shell was very fragmentary to indicate repeated shifting before being finally dumped. There were, however, some deposits of intact shell, including bivalves with the two parts still attached. Layer 5 thus appears to have been the result of repeated re-use of a nearby cooking area with old and new waste dumped together.

Fish bone in the midden could be accounted for by only a very few individual fish. Included are a minimum number of nine snapper (*Chrysophrys auratus*), two kahawai (*Arripis trutta*), and one each of gurnard (*Chelidonichthys kumu*), john dory (*Zeus faber*), blue mackerel (*Scomber australasicus*) and trevally (*Pseudocaranx georgianus*). A handful of mostly fragmentary bird bone was found. Among are single bones identified as possibly coming from pigeon (*Hemiphaga novaeseelandiae*), kaka (*Nestor meridionalis*), duck (*Anas* sp.) and banded rail (*Rallus philippensis*).

Mammal bone was mostly dog (*Canis familiaris*) and was concentrated at the north-west corner of the excavated area. Here there were fragments of cranial bone, a left mandible, maxilla fragments and teeth, leg and foot bones, and rib fragments. Fragmentary bone was scattered widely throughout the square including more head and leg bones, also scapulae, pelvic bones, vertebrae and ankle bone (astragalus). The range of bone scattered throughout the midden deposit clearly show dog to have been an important part of the diet, at least in this phase of the occupation of Raupa and at this part of the site.

Other mammal bone included human, sea mammal, kiore (Polynesian rat; *Rattus exulans*) and possibly pig. Rat bone included mostly leg bones (three femurs, two tibias, and one humerus and fibula) a mandible and some teeth. The selective nature of the remains is an argument for the bones being discarded food waste and not the result of accidental death. Two pieces of sea mammal bone were the vertebra of a cetacean of dolphin size and some very fragmentary remains of rib bone from a large

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Fig. 10. Area I. Level II, 6 February 1987. View to west.

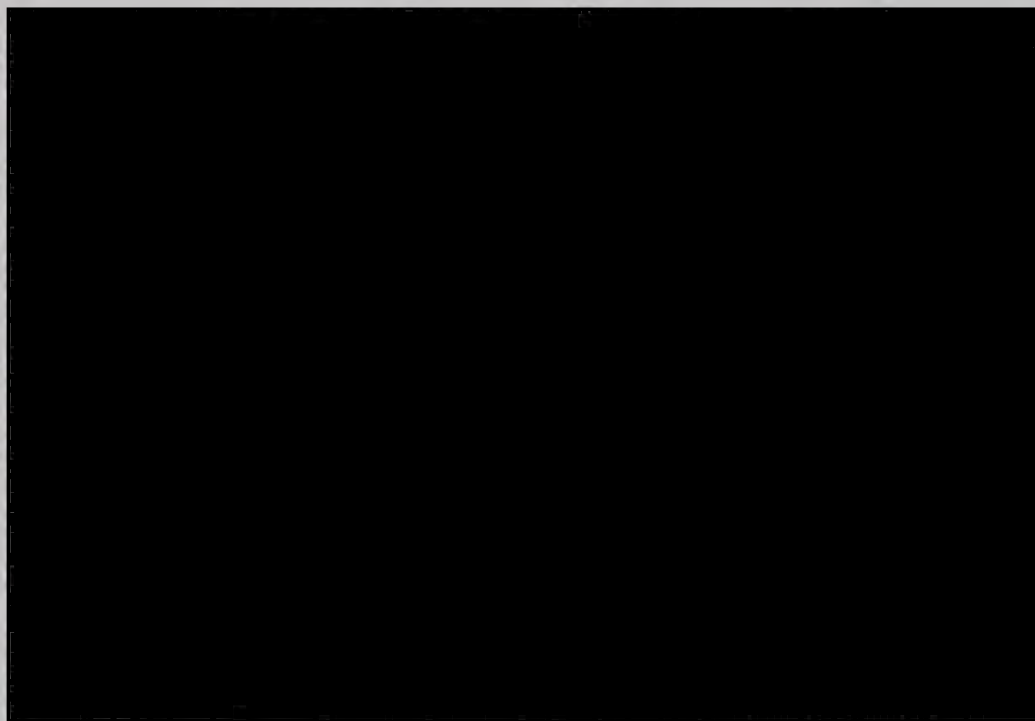


Fig. 11. Area I. Surface of Level III (Layer 5 midden), 28 January 1987. View to east.

or medium-sized whale. Pig may be represented by one vertebra. Human bone was not common. Positively identified was a patella (kneecap) and one tooth; there was also a rib fragment which may have been human. Except for the tooth, we must assume that these remains are evidence of use as food.

Level IV. The final phase of Maori occupation at Area I is represented by the surface of Layer 4. Layer 4 itself is probably the result of flooding which buried the midden layer beneath with as much as 300 mm of sandy material. At the top of this are some thin lenses of waterlaid charcoal (Fig. 4). Most of the Layer 4 surface was level but in the north-west quarter of the square it had been raised and broken up by the small tree which grew here. A single posthole was found in metre square D3.

Level IV represents a period after the main occupation of Raupa when this part of the settlement was no longer in use. It is possible the whole site was by now abandoned although the compact charcoal lenses suggest nearby fires and hence some occupation at this late stage. Above Level IV, at the surface of Layer 3, plough marks extended approximately east-west at the north-east corner and southern part of the square.

Adzes

One complete, one part adze and a blade fragment were found. The first two both came from metre square E2, the incomplete item from Layer 4 and the complete from Layer 3. There were no direct archaeological associations to indicate use or any particulars of the final deposition of any of the three items.

The incomplete item (Fig. 37) is the butt end of a rounded rectangular adze, one face (probably the front) slightly wider than the other. The fragment is 140 mm in length and 67 mm wide narrowing to a markedly round poll. The complete adze may have been *ca.* 200 mm long. Original surfaces are polished over extensive hammer-dressing. Considerable haft polish can be seen down the centre and at edges of the back to indicate much use of this adze. There is also a very little haft polish over the hammer-dressed butt. When the adze was broken there was an attempt made to fashion a new bevel by trimming back from the broken end; a few flakes were taken off before the adze was abandoned. The raw material is a medium to coarse-grained green Waiheke Group greywacke from the inner Hauraki Gulf islands or west side of the Firth of Thames (Schofield 1967).

The Layer 3 adze (Fig. 38) of rounded rectangular cross-section measures 130 x 58 mm and *ca.* 25 mm deep. Some hammer-dressing is visible beneath over-all polish. Grinding or polish scratches are visible front and back. Despite some use wear, the blade is still in excellent condition. The stone is good quality pale grey basalt probably from the Tahanga, Coromandel Peninsula, source (see Fig. 1).

From the surface of the midden layer in metre square A1 came a blade fragment of a well finished adze in green greywacke with small black inclusions. The piece measures 31 x 20 mm and *ca.* 7 mm deep, enough to identify the adze as being of rectangular cross-section. A broken angle has subsequently been smoothed off to indicate use of the fragment for a grinding or cutting purpose.

Worked bone

A fragment of worked bone, probably bird, was found in Layer 4, metre square D3 (Fig. 49). The piece measures only 26 x 13 mm. It has been cut or snapped on three sides and shows also some cut marks across the narrow end. It was probably a tattooing chisel, broken during manufacture or use.

From the midden layer, square A5, came a 36 mm long unfinished bone needle (Fig. 47). It is possible that it has been broken from a once larger needle but its similarity with a number of needles from Oruarangi (Fisher 1934: Figs 40-57) suggests this was very much the final shape but for the lack of a drilled eye. The bone is probably dog jaw (Fisher 1934: Figs 29-32).

Obsidian

From the various layers of Area I were recovered 216 pieces of obsidian weighing 771.3 g. The distribution of this material is outlined in Table 1. Fifty-seven per cent by weight came from Layer 3, 38% from Layer 4 and 5% from the Layer 5 midden.

Distribution was not spread evenly over the excavated area. In Layer 3 there was a concentration in metre squares D3 and E2-3 (43% of the Layer 3 total) and also in squares A1 (7%), and A3-4, B4 (28%). These seven squares alone accounted for almost 80% of the total. In Layer 4 only four metre squares (E1, E3, C4, E5) account for 70% of the total obsidian by weight. In Layers 3 and 4 there is little obsidian over the southern part of Area I. Not much, however, can be said concerning the distribution of so small a quantity of material over an area only 5 x 5 m; it is unrelated to any structural evidence and may be the result of one or two episodes such as the working of wood or fibre or the preparation of food.

The majority of obsidian flakes were small. Forty per cent of Layers 3 and 4 material were less than 1 g in weight with a like amount 1-5 g. Most of the remainder was 5-10 g. Only five pieces were more than 20 g, one of which, of 68.3 g, may have been used as a core. Only eight pieces showed any sign from the presence of edge damage of having been used as tools. Almost all the pieces are of green Mayor Island material, three pieces from square C4, Layer 4, being from the Waimata Stream, Waihi, source (Moore & Coster 1989). The 14.3 g weight of Waihi material is 1.9% of the total.

Chert

Thirty-four pieces of chert weighing a total of 232.6 g were recovered from Area 1 (Table 2). There was also a 17.6 piece of cream coloured chalcedonic material found among disturbed material of Layer 1. Twelve pieces came from Layer 3 (85.2 g), 16 from Layer 4 (103.7 g) and six from Layer 5 (43.7 g). Table 2 gives the distribution by layer and metre square.

There were no large pieces, the majority of items being less than 5 g in weight. The most common raw material is fine-grained and white, cream or yellow ochre in colour. Also present is cream, pink and yellow, brown-grey chalcedonic cherts, and coarser black, red and grey materials.

Table 1. Area I obsidian distribution, from 216 pieces of 771.3 grams.

Square	Layer 1		Layer 3		Layer 4		Layer 5	
	No.	Wt (g).	No.	Wt (g).	No.	Wt (g).	No.	Wt (g).
A1	1	0.1	15	32.4	2	2.6		
B1			12	21.5	2	0.2		
C1			1	15.2			1	10.0
D1	1	0.2	1	2.8	2	3.9		
E1			7	12.9	2	106.2		
A2					1	19.1		
B2			3	2.1	1	5.7	1	12.1
C2			2	3.4	1	6.7	2	3.7
D2			1	1.0	3	7.0		
E2			14	61.5			1	1.5
A3			8	34.7			2	2.6
B3			3	10.1	10	21.6	3	1.7
C3			1	0.1	8	11.6	2	6.9
D3			33	69.2	2	1.7		
E3			9	56.6	5	40.4		
A4			12	63.9	1	0.5		
B4			12	25.4				
C4			5	7.3	7	33.0		
D4			3	3.0				
E4			2	2.6				
A5								
B5			4	0.9	1	6.9		
C5								
D5			2	8.8				
E5			3	0.5	1	29.5		
	2	0.3	153	435.9	49	296.6	12	38.5

Approximately ten items display edge damage, which is a comparatively large number out of the total of only 37 pieces. In Area III there was a similar number of utilised pieces out of 462 chert items. A fine-grained piece of chalcedonic quality (square B1, Layer 3) was edge damaged and smudged with red ochre. A piece of the common off-white variety of chert (E1, Layer 4) displays edge damage in addition to possibly having been used as a drill-point. A second possible drill-point which also displays considerable edge damage was found in square E4 Layer 5. This item was of comparatively coarse-grained brown chert with black and opaque white chalcedonic inclusions, identical to the raw material of a 17.5 g core fragment from the same square (but assigned during excavation to Layer 3) which shows systematic reduction of the sides from two opposite platforms *ca.* 25 mm apart.

Table 2. Area I chert distribution, from 36 pieces of 238.5 grams.

Square	Layer 3		Layer 4		Layer 5	
	No.	Wt (g).	No.	Wt (g).	No.	Wt (g).
A1						
B1	2	26.2				
C1						
D1			8	27.9		
E1	2	23.4	2	13.1		
A2	1	6.6	1	21.7		
B2	1	1.2				
C2	2	4.4			2	19.6
D2			1	11.2		
E2	1	3.9				
A3					1	4.0
B3						
C3						
D3						
E3			1	6.8		
A4						
B4						
C4	1	0.9				
D4						
E4	1	17.5			1	4.3
A5			2	14.3		
B5						
C5						
D5	1	1.1				
E5			1	8.7	2	15.8
	12	85.2	16	103.7	6	43.7

Kokowai

Kokowai or red ochre paint was present in Areas I-IV in the form of innumerable tiny pieces throughout the Maori occupation levels. In many areas within the excavations every scrape of the trowel revealed another piece or pieces. Kokowai was especially abundant in Areas III and IV, but in Areas I and II also it was very common.

The ochre was almost all in very small pieces, only rarely was a piece found greater than 10 mm in its greatest dimension. The pieces were of a fine soft consistency which probably had been processed, by burning and grinding if haematite was used as a raw material, then mixing with shark oil (see Te Rangi Hiroa 1966:319; E. Best 1924 II:543-545). Haematite rock is available in the nearby Coromandel Ranges. Alternatively ochre may have been obtained from streams or swamps where particles

coloured red by iron oxides were collected on bunched fern fronds placed in the water. Raupa kokowai was of two colours: most was a dark wine red or magenta colour, 10% or less was orange ('brick') red.

Kokowai was the most widely used of a limited range of Maori 'paints'; other colours were blue, black, white and possibly yellow (E. Best 1924 II:543-545). It was painted on the body, on cloaks or other clothing, on canoes, and on buildings or other structures. The flecks of kokowai throughout much of the Raupa site are indicative of widespread use and heavy application of this important decorative material.

There are two items from Area I which relate to the manufacture of kokowai. A small, 3.7 g weight, piece of soft haematite (or cinnabar?) of wine red colour is probably raw material. A 130 x 85 x 60 mm water-rolled stone of volcanic origin, possibly andesite, has been used in the preparation of kokowai. Large pieces have been broken off the stone which now weighs 850 g; water-rolled and broken surfaces alike have thick patches of kokowai adhering to them.

Pumice

Among ten pumice fragments from Area I is an angular piece, 70 x 47 x 33 mm, extensively used to polish (wooden?) shafts and, by way of sharp edges, inside narrow grooves. It came from metre square E3, Layer 5B. Another unusually large piece of water-rolled pumice, *ca.* 90 x 70 x 50 mm looks eminently suited to polishing or burnishing but has not been used. Other pieces are mostly only 20-30 mm in maximum dimension and are almost certainly naturally deposited.

Other stone

The most abundant stone by far in Area I were oven stones, mostly very fragmentary but some intact or missing only a few heat fractured spalls. Some oven stones can be seen piled up outside the excavation area in Figs 5 and 9.

In addition to material already discussed some quartz, petrified wood, andesite and greywacke fragments were recovered. Two pieces of very crumbly quartz crystal aggregate were recovered from Layer 3, square B4, and Layer 5, A3. They may be waste from chert or other imported stone material or were perhaps brought to the Raupa site for crushing and use as a highly abrasive grinding agent in the manufacture of stone tools. Two small pieces of petrified wood weigh only 2.8 g (C4, Layer 4) and 3.1 g (D2, Layer 5) respectively. Petrified wood was used in the manufacture of fishing lure shanks but these pieces are rubbish, being much too small for any use. Two fragments of grey and green greywacke belong to the important Waiheke Group raw material, again they are waste only.

Kauri gum

Several fragments of highly degraded kauri gum were found in the midden layer, square E1. This may have been an entirely natural occurrence but it was worth remembering that one method of preparing tattoo pigment was from soot obtained by burning kauri gum (Te Rangi Hiroa 1966:296).

Seeds

Charcoal hinau (*Elaeocarpus dentatus*) seeds were recovered from the midden layer, mostly from the eastern and southern margins of the excavated area. Approximately twelve half (split) seeds are represented as well as fragments.

Material of European origin

From Area I came more items of European origin than any other part of the Raupa site. Eight fragments of a pale green high kick-up wine bottle of typical nineteenth century shape (see Prickett 1981:397,399) totalled 52 g. They were scattered through Layer 3, the surface of which showed some plough marks but the base lying on the Level IV occupation surface. The bottle glass fragments probably relate to farming activity of the late nineteenth century prior to the mining up-river which buried the area in silt and rock flour.

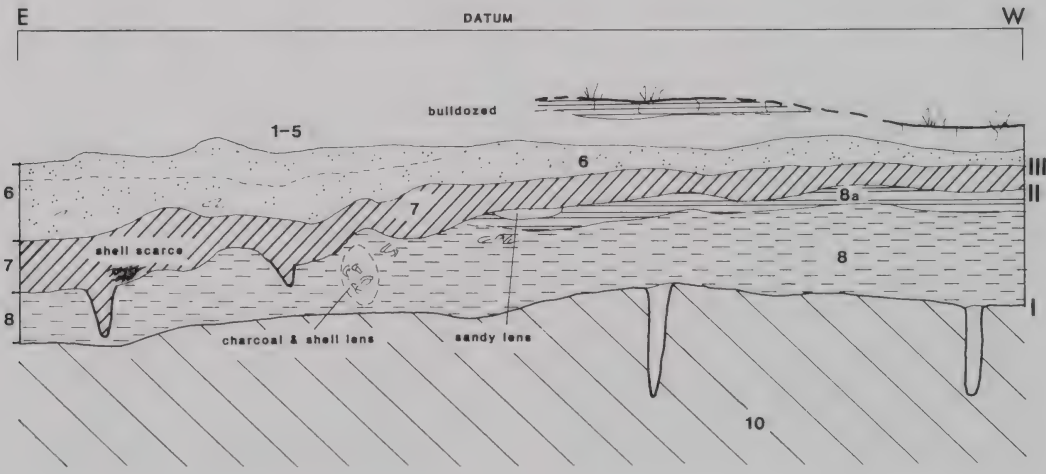
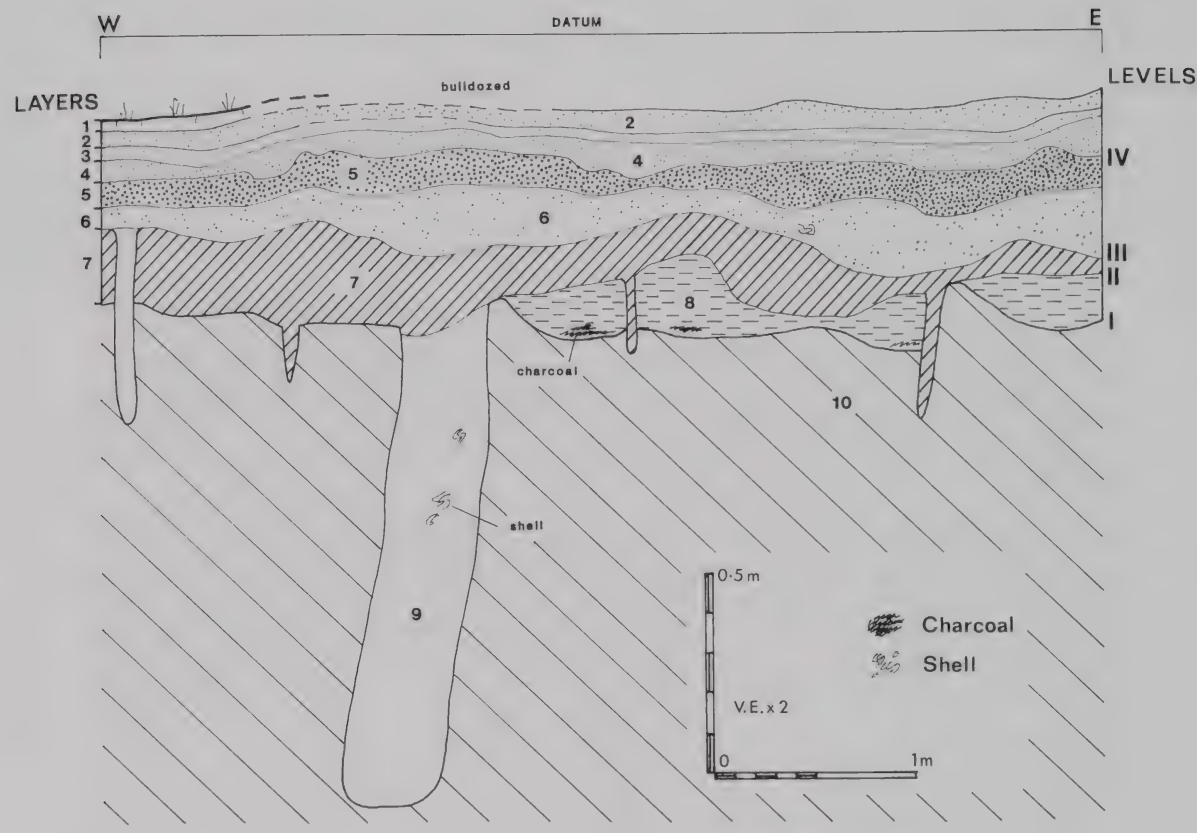
Other European material to come from Area I included a 1 g fragment of a brown glazed jar similar to ink bottles of the mid or late nineteenth century (cf. Prickett 1981:419). Like the bottle glass pieces it was recovered from Layer 3. Also from Layer 3 were four completely rusted iron fragments — three of thin sheet or strap iron and one probably of a nail or piece of wire.

AREA II (Figs. 2,12-22)

In her 1984 excavation Phillips concentrated area excavation along the sides of the major, north-south, Trench E (Fig. 2; and see Phillips 1986:101). Most work went into Areas '1' and '2' where an overlying compacted clay road, dating from the Catchment Board work of a few years before, slowed work and prevented full excavation of the cultural deposits beneath. In 1987 Area II was laid out a few metres east of the 1984 work to further look at this part of the site. The initial 5 x 5 m square was later extended to 30.75 m² to fully investigate a rectangular food storage pit which was revealed at the west side of the excavated area.

Stratigraphy

There are strong similarities in the basic stratigraphy of Areas I and II. In both areas cultural deposits were buried beneath silt and rock flour. The earliest occupation surfaces in both areas showed the remains of wooden structures, and were in each case overlain by black soil containing shell and other midden. Representative north and south sections of Area II are given in Figs. 12 and 13. At the south side of the square cultural deposits are 450-500 mm deep with almost all the overlying rock flour, silt and redeposited soil (Layers 1-5) removed. At the north baulk, however, several of these post-occupation layers remain to give a total depth of 500-600 mm. Also at this baulk is a 1.2 m deep post hole with the remains of a massive post still *in situ* at the bottom. Stratigraphic layers illustrated in Figs. 12, 13 are as follows.



Figs. 12,13. Area II stratigraphic sections. 12. North section (above). 13. South section (below). Layer descriptions in text.

- Layer 1. Loose yellow-brown silt and re-deposited soil.
- Layer 2. A very distinctive 50-100 mm band of compacted yellow rock flour.
- Layer 3. Band of pink compacted rock flour, *ca.* 50 mm, with 10-20 mm band of black silt loam above and below.
- Layer 4. Zone of mixed silts and black silt loam, 50-100 mm.
- Layer 5. Deep chocolate brown silty clay, 50-100 mm.
- Layer 6. Black silty clay 50-200 mm deep, with plentiful charcoal and rare shell. At the south side of the square (Fig. 13) Layer 6 comprises a black sandy loam, again with abundant charcoal, and the upper part of the east end tending to brown.
- Layer 7. Shell midden in black or brown silt loam; abundant charcoal.
- Layer 8. Grey and brown sandy loam with scattered lumps of charcoal and rare shell especially at the south side of the square (Fig. 13); 50-250 mm deep, tending deeper to the south.
- Layer 8A. Black sandy loam, stratigraphically part of Layer 8.
- Layer 9. Posthole fill at north baulk.
- Layer 10. Yellow clay natural.

The occupation sequence

In Area II are three basic occupation levels relating to the Raupa settlement. Evidence of subsequent use of the site makes up a fourth occupation period. Occupation levels may be briefly listed as follows:

- Level I. Scatter of post and stake holes and storage pit — at base of site.
- Level II. Hangi pits and post holes represent cooking activities.
- Level III. Area covered in shell and other midden.
- Level IV. Evidence of ploughing.

Level I. As in Area I the first use of this part of the site saw a number of wooden structures built over the 25 m² which was initially investigated (Figs 14,15). Unlike Area I, however, there is little sense to be made of the scatter of post and stake holes revealed except for two lines of large postholes which extend roughly parallel north-south across the centre and west side of the square. These postholes are 150-530 mm in depth, tending to the greater depth at the north end of the exposed lines. It is doubtful if the two lines are part of a roofed structure and there was no other evidence for this. More likely they signal the remains of a double line of stockade or fence posts, probably for an internal division within the larger fortified settlement.

At the north baulk between the two post lines was a single massive post ('A' in Fig. 14). This first became apparent in the (hangi) layer above but clearly belongs with Level I. The hole was 1200 mm deep and angled down to the west. Within the hole was a distinctive post mould at the bottom of which was the surviving base of the post, identified as kahikatea (*Podocarpus dacrydioides*), the big timber tree of the plains and available in abundance near Raupa. At the south-west side of the posthole was a small 'step', dug probably to ease the raising into place of such a large post. It is possible that a single post such as this supported a storage platform or pataka. More likely it relates to the lines of posts extending to either side of it, and if these do mark an internal division of the pa then such a very large post may be part of a strongpoint or gateway.

There are two other wood identifications from Level I postholes. From posthole 'B' (see Fig. 14) came tawa (*Beilschmiedia tawa*) charcoal fragments, part of the fill and not necessarily indicating the original post timber. In posthole 'C' (Fig. 14) decayed fragments of kauri were found upright in the hole showing that this was timber from the post which stood here. The post is one of a line which it has been suggested may represent an internal stockade.

At the west side of Area II we were fortunate to strike the end of a rectangular food storage pit. The excavation was then enlarged to take in the whole of this new find (Figs. 14,15). The pit was 3.1-3.15 m long and 1.6-1.8 m across, narrowing to floor dimensions of 2.95-3.05 m length and 1.2-1.35 m width. The depth was approximately 800 mm.

Figs 16 and 17 illustrate the west end of the pit. Clearly visible in the photograph are the clay road, banded layers of flood deposited silt and rock flour, crushed shell midden (Level III) and the end wall of the pit. There were no drains on the pit floor. The few shallow stake holes (shown in Fig. 14) belong to Level II structures having been driven through the soft fill and into the floor of the pit beneath.

More information came from the pit contents. This included a large quantity of wood charcoal concentrated on the floor where it made up a compact mass 50-100 mm in depth. Identifications are listed in Table 3. The mass of charcoal almost certainly relates to a single episode of burning and probably includes the remains of the pit roof as the charcoal lay on the floor with no evidence of a period of disuse prior to the conflagration. The predominance of tawa is thus interesting and may denote structural or cladding timber. The variety of small tree and shrub species at the west end of the pit suggests wood deliberately brought together for a fire.

Of interest is the narrow margin for a dry storage pit in a low lying area such as the Hauraki Plains. Only 2 m from the pit is the massive north baulk posthole dug 1 m deeper than the pit floor. The fact that 700-800 mm of the post itself was preserved in the watertable shows just how close was the margin for error.

Level II. Level I occupation of Area II ended when a mixed sandy clay loam with rare shell and charcoal was brought in and spread over the former occupation surface. Numerous shallow hangi scoops show that the area was now used for cooking (Figs. 18-20).

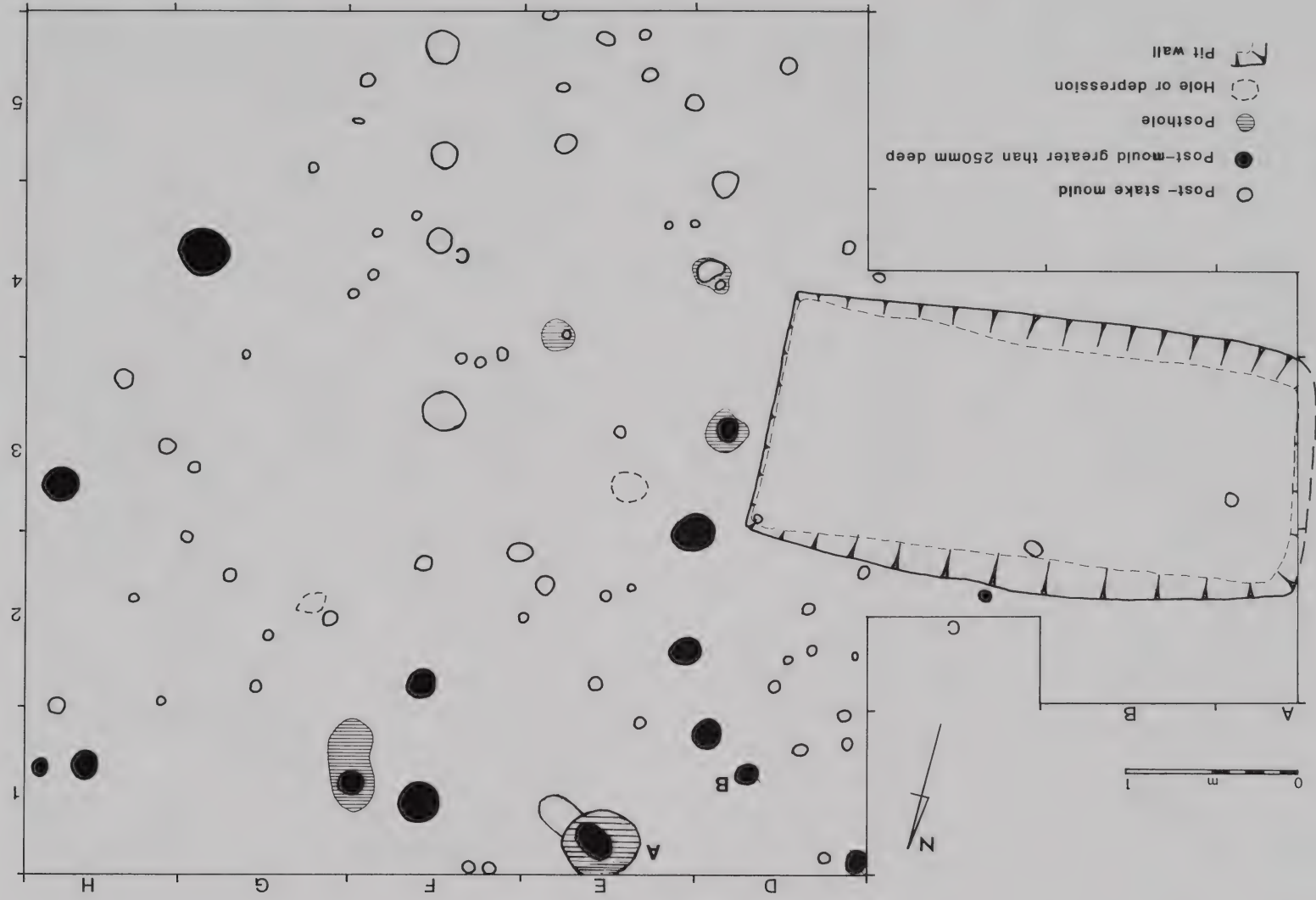


Fig. 14. Area II, Level I plan.

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Fig. 15. Area II. Level I, 11 February 1987. View to west.

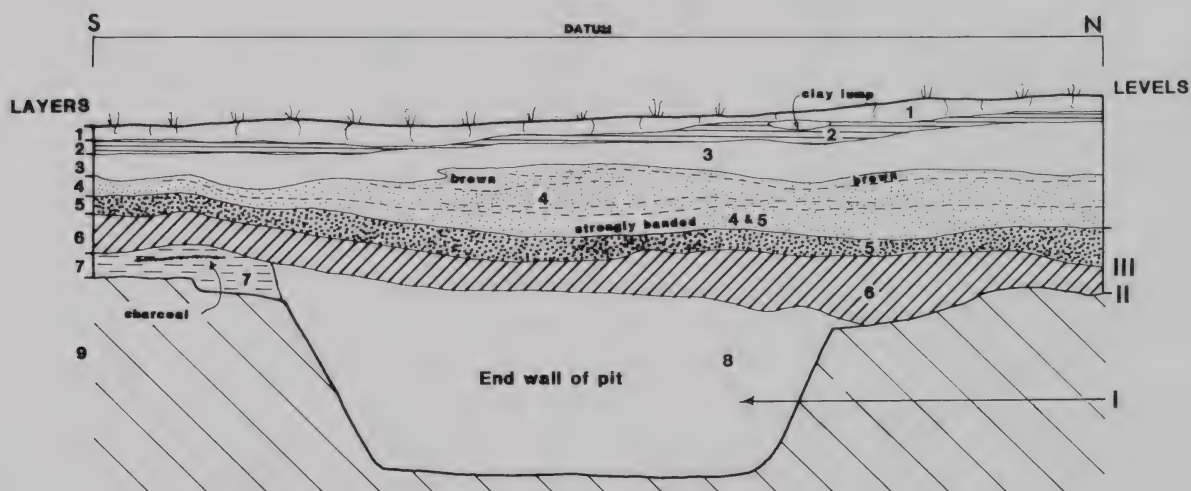


Fig. 16. Area II. West end of excavated pit. Layers. 1. Turf. 2. Compact pale brown sandy clay on surface of clay road. 3. Hauraki Catchment Board (ca. 1980) clay road. 4. Thin lenses of highly compacted yellow, pink and pale brown silt. The lower part of Layer 4 includes some strong black bands similar to underlying Layer 5. 5. Black silty clay with plentiful charcoal. (Layer 6 in Figs. 12 and 13). 6. Shell midden in black soil. (Layer 7 in Figs. 12, 13). 7. Yellow-brown sandy loam with charcoal. 8. Removed from pit was deep soft silt loam, abundant charcoal especially near pit floor. 9. Unexcavated yellow clay material.

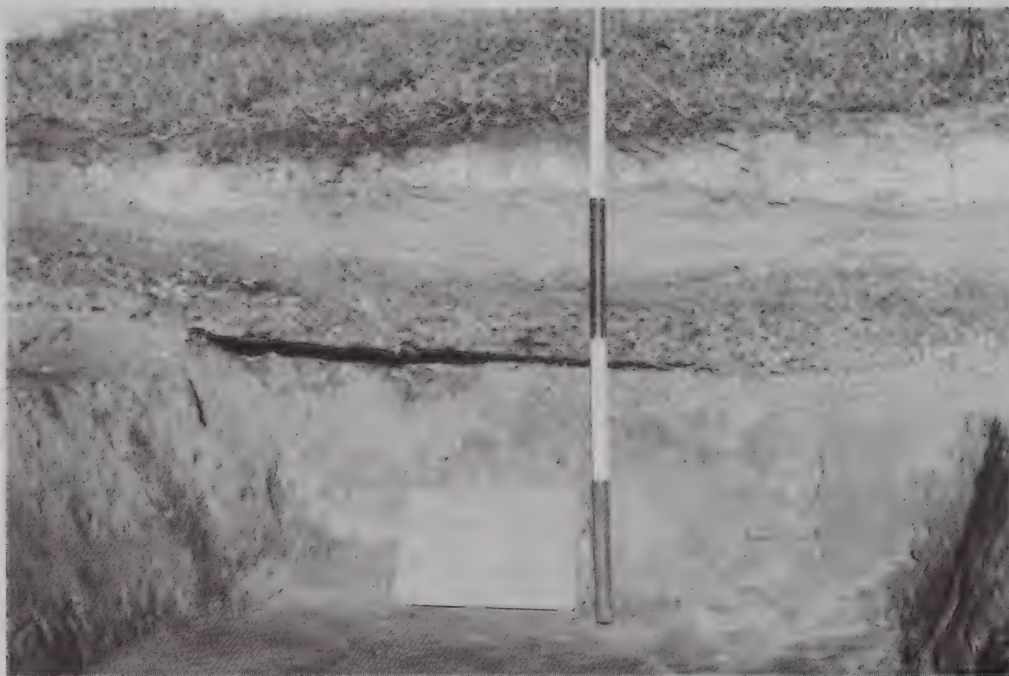


Fig. 17. Area II. West end pit section, 19 February 1987.

Table 3. Area II, pit charcoal identifications.

1.	Pit floor west end.	
	<i>Beilschmeidia tawa</i> — tawa	2
	<i>B. tarairi</i> — taraire	1
	<i>Hebe</i> sp.	3
	<i>Kunzia ericoides</i> — kanuka	2
	<i>Leptospermum scoparium</i> — manuka	6
	A vine species — not <i>Metrosideros</i>	1
	<i>Myrtus bullata</i> — ramarama	4
	<i>Hoheria</i> — ribbonwood, lacebark } <i>Plagianthus</i>	1
	<i>Coprosma</i> sp.	2
	<i>Myrsine salicina</i> — toro	2
	Total identifications	24
2.	Pit floor east end (north). Large sample all tawa.	
3.	Pit floor east end (south). Large sample all tawa.	

Approximately twenty hangi scoops, some dug into earlier ones, were 100-250 mm deep and typically 800-1200 mm in diameter. Hangi stones were plentiful throughout and grouped in places where they were abandoned at the end of this phase of activity.

Level II charcoal samples are listed in Table 4. Sample locations are shown in Figure 18 (A-D). At least 13 species were identified among which the shrub ramarama (*Myrtus bullata*), *Coprosma* species and tawa were abundantly represented. Other shrubs and small trees are also listed. The sole large timber tree identified is matai which is represented by twig wood only. The variety of wood and the occurrence of twig and branchwood reflects the choice of firewood for cooking. This may have been collected from local forest and shrubland or as driftwood from the river bank at the settlement site. Approximately 15 mostly fragmentary hinau seeds were found throughout Layer 7.

Scattered over the 25 m² area are a number of postholes of which little can be said except that those within hangi scoops must post-date the cooking activities. At the west side of the square is a hangi dug partly into the soft fill of the Level I pit. Driven

Table 4. Area II Level II charcoal identifications (located on Fig. 18, Samples A-D).

1.	Hangi scoop contents. Sample A.	
	<i>Myrtus bullata</i> — ramarama	95%
	<i>Prumnopitys taxifolia</i> — matai	twig wood
	<i>Coprosma</i> sp.	twig wood
2.	Sample B.	
	<i>Weinmannia silvicola</i> — towai	1
	<i>Myrsine australis</i> — mapou	2
	<i>Beilschmiedia tawa</i> — tawa	2
	<i>Melicytus ramiflorus</i> — mahoe	3
	<i>Lagorostrobis colensoi</i> — pink pine	1
	<i>Myrtus bullata</i> — ramarama	4
	<i>Brachyglottis repanda</i> — rangiora	1
	<i>Coprosma</i> sp.	1
	<i>Kunzia ericoides</i> — kanuka	1
	Total identifications	16
3.	Sample C.	
	All tawa branchwood 20-25 mm in diameter.	
4.	Sample D.	
	Fern stem (bracken?)	1
	<i>Myrtus bullata</i> — ramarama	1
	<i>Beilschmiedia tawa</i> — tawa	7
	<i>B. tarairi</i> — taraire	1
	<i>Leptospermum scoparium</i> — manuka	3
	Total identifications	13

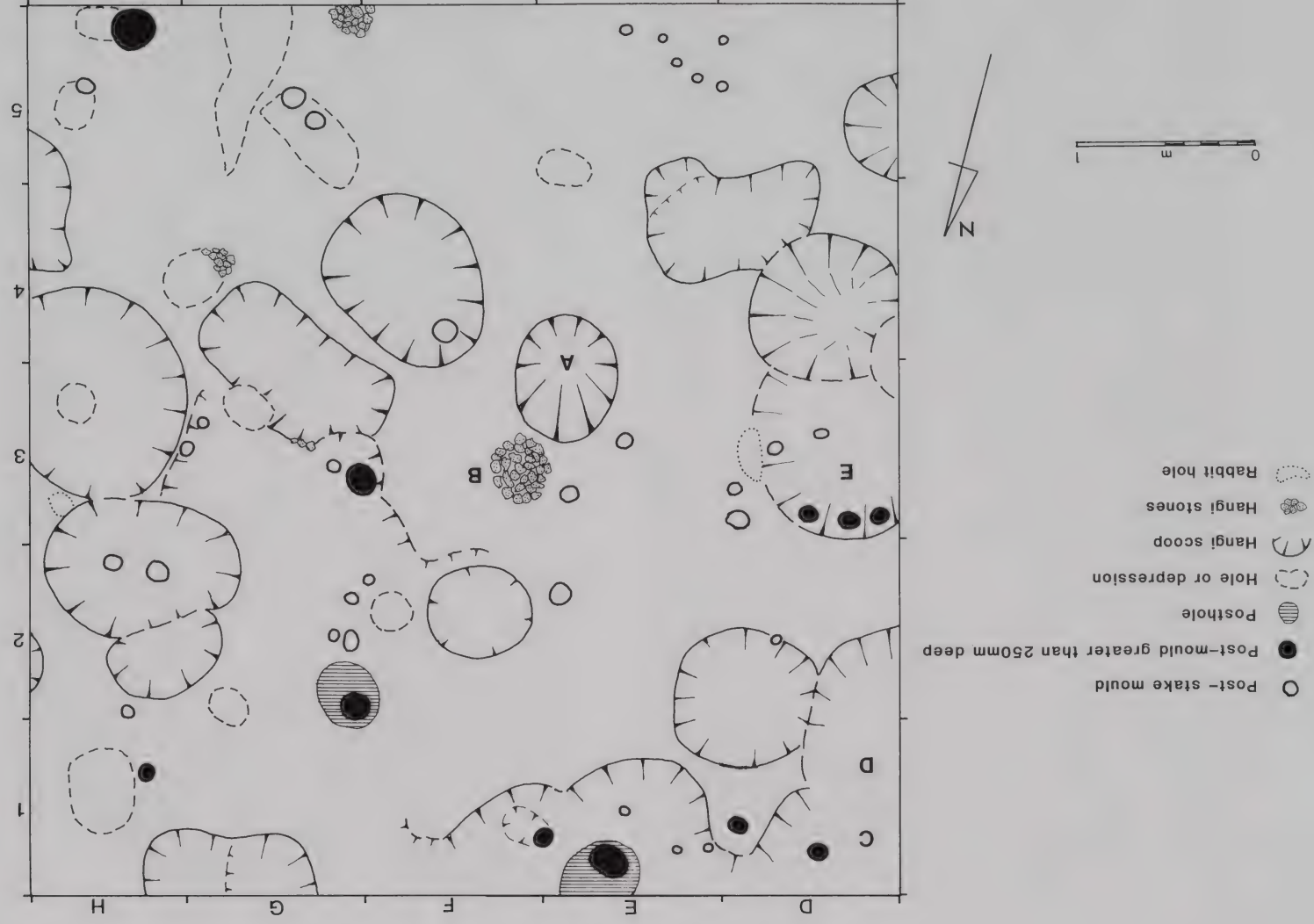


Fig. 18. Area II, Level II plan.

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Fig. 19. Area II. Level II, 2 February 1987. View to west.

Fig. 20. Area II. West section detail showing Level II oven scoop beneath shell midden,
6 February 1987. Pit excavation at right.

500-600 mm into the fill (and pit floor) at the north side of the scoop (marked 'E' in Fig. 18) are three stakes which provide a strong structural support in this part of the cooking area.

Level III. After being used for cooking Area II was covered to a depth of 50-250 mm by a layer of shell midden and black soil (Fig. 21). Much of the shell was crushed indicating it had been moved about more than once after being discarded as food refuse.

Such a spread of waste material suggests that cooking activities were now being carried out nearby and/or that this part of the Raupa settlement was now deliberately levelled up to provide a surface suited to human traffic and activities. There were, however, no postholes or any other indication of what use might have been made of the area. It is possible that the lack of activity or use apparent at Level III suggests a contraction of Raupa so that Area II is now at the edge of the settlement rather than near the centre as formerly. Perhaps this relates to the period after the Nga Puhi attack when a reduced number of people may have stayed on at the pa.

During the excavation shell midden was collected both as bulk samples and particular items of interest. Identifications from one bulk sample are given in Table 5. The table confirms the impression that throughout the excavated area Layer 7 shell midden was made up of approximately 85% pipi, 10% cockle and 5% other species. In the sample there may be more cockle and there is certainly more *Macra* than was usual throughout the site. Table 6 lists 19 shell species identified from among the crushed and scattered remains in Layer 7 (Level III).

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Fig. 21. Area II. Levels II and III, 28 January 1987. View to north-west.

Table 5. Area II Layer 7 bulk midden sample (taken from 'E' Fig. 18).

	Number	Percent
<i>Paphies australis</i>	622	76.5
<i>Chione stutchburyi</i>	121	14.9
<i>Macra discors</i>	52	6.4
<i>Perna canaliculus</i>	5	0.6
<i>Cominella glandiformis</i>	5	0.6
<i>Xymene ambiguus</i>	2	0.2
Unidentified gastropod fragments	2	0.2
<i>Cominella adspersa</i>	1	0.1
<i>Pecten novaezelandiae</i>	1	0.1
<i>Taron</i> sp.	1	0.1
<i>Dosinia anus</i>	1	0.1
	813	99.8
<i>Chrysophrys auratus</i> — snapper	teeth	

Table 6. Area II Layer 7 shells present.

<i>Pecten novaezelandiae</i> — scallop
<i>Perna canaliculus</i> — green mussel
<i>Hyridella menziesi</i> — freshwater mussel
<i>Chione stutchburyi</i> — cockle
<i>Cominella adspersa</i> — speckled whelk
<i>Sigapatella novaezelandiae</i> — circular slipper shell
<i>Buccinulum vitatum</i> — lined whelk
<i>Cominella glandiformis</i> — mud whelk
<i>Amphibola crenata</i> — mud snail
<i>Paphies australis</i> — pipi
<i>Maoricrypta monoxyla</i> — white slipper shell
<i>Maoricrypta costata</i> — ribbed slipper shell
<i>Turbo smaragda</i> — catseye
<i>Maoricolpus roseus</i> — turret shell
<i>Xymene plebeius</i> — small rock trophon
<i>Macra discors</i> — large trough shell
<i>Xymene ambiguus</i>
<i>Taron</i> sp.
<i>Dosinia anus</i> — coarse dosinia

Four fish species were identified from the scattered and fragmentary bone of the midden layer. Much the most abundant was snapper. Eagle ray was represented by four tooth plates and 51 vertebrae scattered throughout the square. Kahawai and gurnard were represented by a single vertebra and operculum respectively. Two tiny vertebrae were provisionally identified as yellow-eyed mullet (*Aldrichetta forsteri*). Some fishbone had been chewed by dogs.

Very fragmentary mammal bone also was scattered throughout Area II midden level. Dog bone includes mandible, maxilla and cranial pieces, two cervical vertebrae and two metacarpals. These probably indicate the butchering of dogs for consumption. Kiore was represented by a femur and tibia. A fragment of whale (cranial?) bone was extensively chewed by dogs. Two pieces of pig bone were found together at the east side of the square. A cervical vertebra has been chopped down two sides, presumably during butchering. A fragment of the distal end of a left humerus is close to the size of a six-month old animal. Nearby was a single tooth, possibly human.

Level IV. Leaving aside the remains of the clay road above the west end of the pit and the rock flour from the up-river mining operations which covers the whole site, the last human activity to have left archaeological evidence in Area II is shown in Fig. 22. On the surface of Layer 5 a series of shallow ditches are scored east-west across the square approximately 750 mm apart. Associated are numerous more or less defined holes approximately 150 mm in diameter and never more than 120 mm deep.

The shallow ditches were quickly identified as plough lines. More speculative is the suggestion that the associated holes are the footprints of a draught animal which pulled the plough. Judging from the size and depth of these holes it is suggested further that bullocks not horses were the animals used. This ploughing of the Raupa site must date from the late 19th century before the Karangahake Gorge mines filled the river and covered the nearby plain in rock flour waste from quartz crushers.

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Fig. 22. Area II. Level IV ploughlines, 17 January 1987. View to west.

Stone material

Area II was notable for the lack of waste stone material. Nor were any fashioned artefacts found. Seven tiny pieces of green, probably Mayor Island, obsidian totalled only 2.7 g. All came from the midden deposit (Layer 7) and with the exception of one piece of waste all are from the northern edge of the square.

Only four pieces of creamy-white and grey chert were recovered totalling 18.7 g. A 1.2 g fragment of quartz and a small piece of petrified wood the same weight complete the stone material. With the exception of the petrified wood this material all came from the south-west corner of the square. Thus the chert, like the obsidian, might be accounted for by a single event. Except for the large quantity of oven stones throughout the site, associated notably with the Level II occupation, there was no other stone material of cultural origin.

Small (less than 15 mm maximum dimension) fragments of water-rolled pumice were found mostly in Layer 8. These clearly relate to episodic flooding at the Raupa site.

Worked bone

A flat fragment of bone 25 x 11 mm and 4 mm deep has been sawn and snapped along one margin. The other edges are roughly broken. This item was found in metre square H3, Layer 6.

Material of European origin

The only item of European origin from Area II was a broken fragment of thin flat aqua glass, possibly from a window. It was found on the surface of the midden layer in square F5 and may therefore relate to the Maori occupation of the Raupa settlement, but more likely dates from the episode of ploughing represented by Level IV.

AREA III (Figs. 2,23-30)

Areas III and IV were opened up on a part of the Raupa site just north of the 1983 'Trench A' and approximately 100 m south of the innermost of the three defensive ditches which cut the narrow neck of the old river bend (Fig. 2). A wide area was prepared here by grader so that the two initial 5 x 5 m squares could be extended as seemed profitable. As it turned out Area III was eventually expanded to 107.6 m² and here was focussed the major effort of the latter part of the six week excavation season.

Stratigraphy

Over most of Area III the natural base of the site was not reached for the reason that it was decided to concentrate on exposing as much as possible of an upper occupation level. Hence we do not have a full occupation sequence of this part of the Raupa site. Excavated depth varied from 220 mm in the south-east corner of Area III, to 350 mm at the north-east corner and 450-500 mm on the west side and north-west corner. The stratigraphic sequence is as follows.

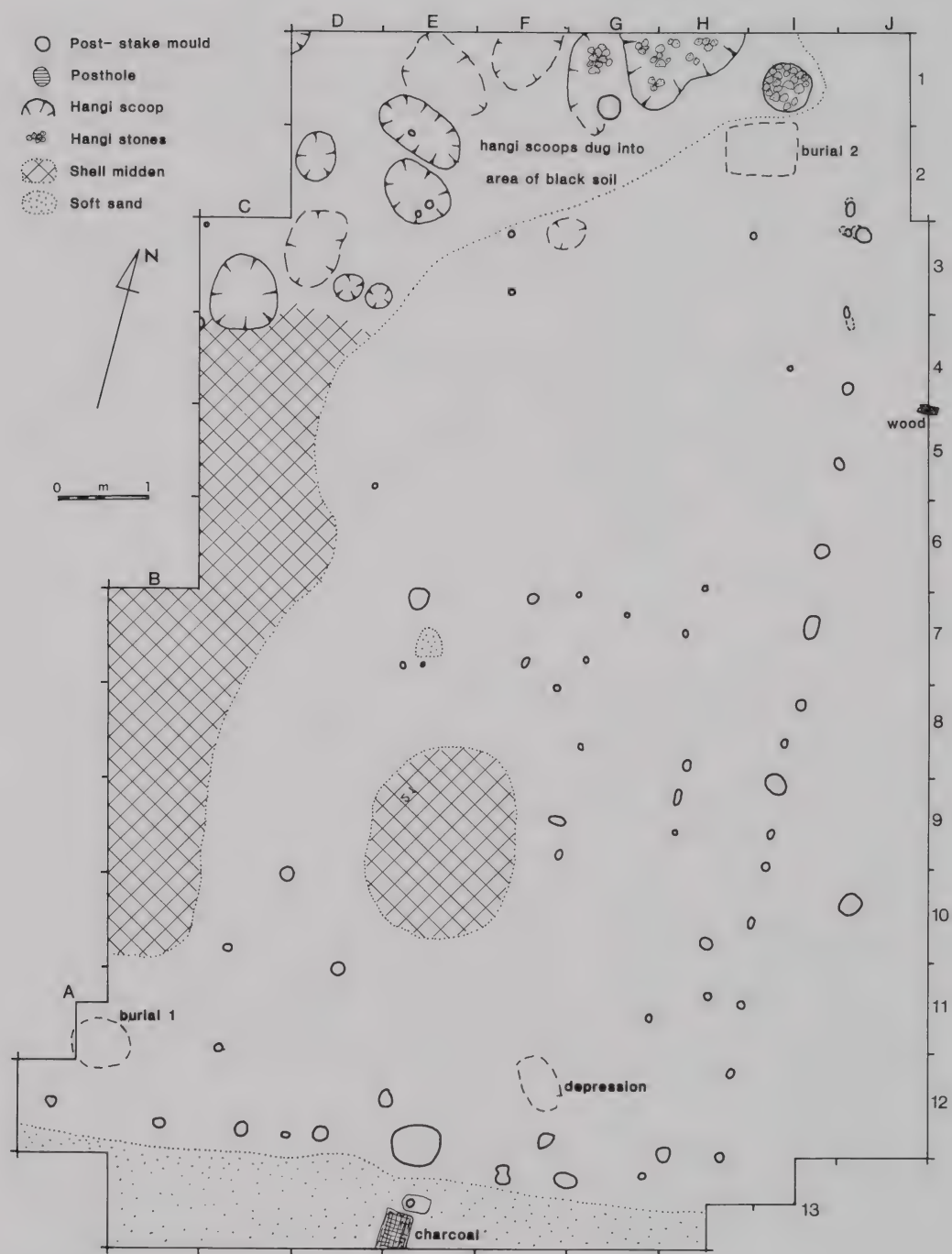


Fig. 23. Area III. Plan.

- Layer 1. Up to 60 mm of silt and rock flour overlay parts of the excavated area having been left by the grader which successfully removed most of this material. Over some of Area III excavation began with Layer 2.
- Layer 2. Beneath the recent flood deposits was a compact hard grey silt loam, 50-120 mm deep, with pale grey clay inclusions.
- Layer 3. A comparatively soft brown clay loam 100-200 mm in depth incorporated fine charcoal and ochre fragments, also numerous pieces of obsidian and chert. Within this layer were lenses of soft crumbly chocolate brown loam with comparatively little artefactual material.
- Layer 4. Layer 4 was signalled over most of Area III by a hard black and grey surface of sandy clay loam. This was the only excavated occupational level of Area III. Over much of the north and west part of the excavated area the distinctive compact occupation surface was replaced by hangi scoops and shell dumps (Fig. 23). The former were dug into black sandy silt loam at the north end of the excavated area, while the loose shell midden was mostly contained in a pale sandy soil including some lenses of almost pure sand.

Layer 4 occupation surface

The important find of Area III, and indeed the most interesting discovery of the 1987 excavation season at Raupa, was the remains of a large rectangular house. This measured *ca.* 10.5 x 6.25 m, and occupied *ca.* 65.6 m², thus taking up a large part of the excavated area in this part of the site (Figs. 23,24). It was to fully reveal and explore this building and its immediate environs that Area III was expanded to a total of 107.6 m² (see Figs. 23-25).

A hard trodden surface marked the floor of the house. This was variable in colour, mostly grey but tending to black in places. The material was a gritty, sandy clay loam. The compacted depth of the occupation surface was up to *ca.* 100-120 mm. Although the underlying layers (and occupation levels) were not excavated the Layer 4 occupation surface was trowelled down 20-100 mm in places during the search for structural features related to the house. Many postholes were not apparent at the floor level but needed repeated stripping of 10-20 mm thicknesses of Layer 4 before they were found (see Fig. 25).

By good fortune the most distinguishable part of the house plan was contained within the initial 5 x 5 m excavation square. Here was the south-east corner of the building which enabled us to predict exactly the direction of the south and east walls (Fig. 24). Table 7 lists posthole data for all of Area III including the large house.

The size of the house is indicated by the east and rear walls. From the corner post (49 — see Fig. 24) to the group of three close-set posts at the north end of the wall is *ca.* 10.5 m. The corner post itself proved smaller than most side wall posts. The group of three posts which mark the north end of the wall are all angled into the ground presumably to increase their combined strength.



Fig. 24. Area III. Posthole information. Numbers refer to Table 7.

Table 7. Area III posthole data (refer to plan, Fig. 24).

Posthole number	Plan measurements (mm)	Depth (mm)	Notes including timber identification if available
1	190-180	34	
2	70-50	90	
3	80-80	230	
4	50-50	50	
5	70-60	110	
6	140-140	180	
7	50-50	70	
8	60-60	170	
9	70-70	200	
10	190-160	270	Angled down to north
11	190-160	490	Angled down to west
12	100-80	250	Angled down to west
13	110-60	190	Angled down to south
14	60-60	120	manuka/kanuka — charred wood
15	130-120	90	
16	170-130	370	hinau/pokaka (<i>Elaeocarpus</i> sp.) — charcoal
17	150-150	210	
18	250-200	330	
19	60-60	80	
20	230-200	370	
21	80-60	120	
22	70-70	70	
23	100-90	240	
24	80-60	110	
25	50-50	160	
26	70-70	110	kauri — chunks of unburnt wood
27	90-60	260	kauri — upright slivers of unburnt wood
28	130-80	180	
29	90-80	450	
30	70-70	200	
31	60-40	200	manuka — charcoal fragments from stake hole
32	100-90	150	
33	160-70	160	
34	60-50	110	
35	180-90	160	rimu — upright slivers charred at top
36	140-80	380	totara — chunks of charred wood and charcoal
37	110-110	300	hinau/pokaka — charcoal
38	100-90	450	kauri — wood charred at end
39	250-250	380	kauri — charred wood and charcoal including resinous knot wood
40	100-80	230	kauri — slivers some charring at top
41	100-100	440	kauri — wood slivers
42	110-60	290	kauri — wood slivers
43	270-230	630	matai — massive piece of straight-grained timber. Also slivers, some burned at top rimu/totara/kahikatea/miro — too decayed to distinguish. 130 mm long 60-70 mm round cross-section

Posthole number	Plan measurements (mm)	Depth (mm)	Notes including timber identification if available
44	120-120	600	
45	90-80	300	totara — charcoal and charred wood
46	70-70	260	
47	100-90	450	
48	110-90	360	
49	100-90	350	
50	170-170	190	kauri — unburnt slivers
51	80-80	80	matai? — unburnt slivers
52	200-170	350	matai — unburnt slivers
53	170-120	230	kauri — slivers charred at top
54	200-150	200	rimu/totara/kahikatea or miro — highly degraded unburnt slivers not identifiable as to species
55	530-460	420	kauri — massive piece of timber charred at top and including resinous knot wood Also in posthole kauri/rimu and mapou charcoal
56	80-60	200	
57	180-120	310	kauri — slivers and resinous wood
58	170-170	310	totara — fragmentary slivers from base of hole
59	70-70	70	totara — charred wood fragments
60	180-160	200	kauri — unburnt wood
61	130-90	280	totara — charred wood rimu — charcoal line adjacent to post
62	80-60	110	
63	170-170	270	kauri — slivers and pieces, no burning
64	150-150	550	
65	100-90	90	
66	180-160	570	

The house rear wall is centred on a very large ridge post the mid-point of which is *ca.* 3.35 m from the south-east corner post (see Fig. 26). However, despite much searching we were unable unequivocally to define the south-west corner post or to find any of the west side of the house. The reason for this was either that we did not search a wide enough area or, more likely, that this part of the house, which was dug over later for cooking ovens and subject to the dumping of midden, has been destroyed. The midden was removed and hangi scoops cleared out by excavation but still there was no sign of a line of posts comparable to the east side of the house. It is possible the house was markedly asymmetrical and that we did not take in a wide enough area to find the west side. Posthole 63 (see Fig. 24) 4.05 m from the ridge post is on line to have been a corner post and if it was may have put the west wall outside the excavated area. But this would have meant three posts on one side of the rear centre and four on the other. More likely the corner post is that marked '61' in Fig. 24. This would retain the balance of three posts on either side despite the different dimensions. The two sides of the ridge post are thus 3.35 m and 2.9 m respectively, giving a total house width of 6.25 m.

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Fig. 25. Area III. House floor, 20 February 1987. View to north.

Fig. 26. Area III. South-east corner of house showing ridge post (foreground) and double line of posts beyond, 11 February 1987. View to east.

A large posthole at the north end of Area III may possibly have been the centre front ridge post. Posthole 1 on Fig. 24 is more than a metre forward of the end of the east side wall represented by postholes 10, 11 and 12. A problem here is that with the possible exceptions of postholes 23 and 28 there are no apparent candidates for intermediate posts to support the 11.6 m span. Also, if this was the ridge post then the house narrowed slightly to the front.

Charcoal and charred post butts show clearly that the house was burnt down, thus sharing the fate of many if not most dry and highly combustible Maori dwellings of timber and thatch. Fig. 24 shows identified post and stake timbers, with details given in Table 7 of charcoal or fragments of unburnt post butt which survived. Kauri was the preferred building timber, with totara, hinau or pokaka (*Elaeocarpus* sp.) and matai also used for house timbers. Other post and stake timbers not part of the house itself are matai, manuka/kanuka, kauri, rimu (*Dacrydium cupressinum*) and totara.

The rear wall of the house was centred on the massive ridge post which was very much larger than any other post in Area III. Much of the butt survived, although decayed (Fig. 27). It was charred at the top, which was the former ground level. East of the ridge post was a double line of posts to the south-east corner of the house (see Fig. 26). Behind the two posts exposed to the interior of the house, presumably the main structural posts, was a line of three further posts most likely designed to hold in place the thatch insulation. This feature was absent on the other side of the ridge post. Immediately behind the ridge post was a further small post, possibly part of the house

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Fig. 27. Area III. House ridge post, 17 February 1987. View to south.

structure, and behind this was a horizontal slab of charcoal. Across the excavated area outside the rear wall of the house was a sand deposit 100-250 mm in depth (see Fig. 23), almost certainly designed to act as a soak or drain to prevent water seepage through the wall to the house floor.

The side wall has thirteen posts between the south-east corner of the house and the group of three which I have suggested marks the front end of the wall. Gaps between posts varies between 980 mm (postholes 16, 17, Fig. 24) and 360 mm (postholes 40, 41). There is, however, a regular measurement of approximately 850-900 mm along the length of the wall, with two additional posts (38, 40) interposed between 37-39 and 39-41. These regular distances all fall between 980 mm (postholes 16, 17), and 820 mm (15, 16) except towards the south end where the gaps from 46 to 48, and 41 to 42 are smaller at 760 mm and 640 mm respectively. The generally regular gaps confirm the identification of this as a house wall.

The wall is straight except at the north end where it bends slightly inwards. This may mark the change from house interior to porch. If so then the interior is 8.7 m in length and the porch 1.8 m deep.

At the north end of the excavated area are the remains of upwards of ten hangi scoops. These clearly have been dug into the earlier house floor and adjacent trodden surface at the front of the building. Hangi stones were found in some scoops which varied from 60-80 mm to more than 400 mm deep.

At the west side of Area III was a discontinuous and thin layer of shell midden, some of which contained lenses of loose grey sand. This consisted mostly of pipi with smaller numbers of cockle and mussel (*Perna canaliculus*), *Cominella* and *Cookia*. Occasional fishbone were mostly too fragmentary for identification; of bone which could be identified 90% was snapper and the remainder eagle ray vertebrae. Two kauri gum 'pebbles' were found in squares D1 and I7. One hinau seed fragment came from C4.

Mammal bone recovered from Area III included dog, which was mostly in the vicinity of an isolated patch of loose shallow shell midden 3-4 m north of the rear wall ridge post (marked 'A' in Fig. 23). From here came a dog rib, left and right tibias, a right radius, three or four phalanges, a cervical vertebra, two jaw pieces and a piece of skull. From elsewhere along the west side of Area III came a dog femur, left tibia and some fragmentary teeth and mandible fragments. Two very fragmentary pieces of massive bone were tentatively identified as whale. Finally, from the extreme north-west corner of the excavation, in the area dug over for cooking, was a single right lower molar of a juvenile (ca. 6 months old) pig.

A large part of the mammal bone listed above was found trodden into the occupation surface associated with the house. In the same situation was other bone which suggests that this may have been no ordinary scatter of food waste. Fragments of human bone were found trodden firmly into the compacted surface of the former house floor. An analysis of this material was carried out by Elizabeth Hudson of the Anthropology Department, University of Auckland, to whom I am indebted for the following information.

The least fragmentary material came from two confined areas near the centre of the house. In square D7 (Fig. 23) were found a left maxilla (upper jaw bone), part of an axis (second cervical vertebra) and parts of the right side occipital and parietal cranial bones in addition to other extremely fragmentary cranial bone. Those bones which do give an indication as to age suggest a youthful individual of perhaps 11-12 years. In the adjacent square E7 was the proximal end of a left tibia, and less certainly identified, an atlas fragment. From square E8 came a possible ulna fragment.

From squares G7 and 8 came maxilla and cranial bone pieces, and a possible vertebra fragment; also a mandible (jaw bone) fragment that from the evidence of an associated unerupted deciduous molar tooth was identified as belonging to a child of 18 months or two years of age. A fibula fragment was identified as probably coming from an adult male. Other pieces of human bone included a tooth (first lower right premolar) from square C3 and fragments which might have been pieces of finger bone (B11).

Burials

Two human burials were found during the excavation of Area III (see Fig. 23). Both graves were dug from the surface below the silt and rock flour and so date from the period after abandonment of the Raupa settlement some time in the 1820s or early 1830s and before the late 19th century mining and deforestation upstream.

Burial 1 was located at the south-west corner of the excavation area. The trussed remains were lying on the left side, orientated east-west and facing just east of north. The remains of the body were found at 300-400 mm depth at the bottom of a shallow pit *ca.* 900 x 800 mm in plan. The burial itself took up an area of *ca.* 725 x 425 mm. The body had its knees drawn up to the chest with arms at the side and hands apparently placed on the knees. A brief examination during excavation suggested that this individual may have been a child or young person of 11-13 years.

Soil immediately below the remains was strongly stained with ochre. On top were the fragmentary remains of several parallel wooden planks laid east-west along the length of the body. The planks were not part of a coffin but were simply laid on top of the interred remains.

The second burial (Burial 2 in Fig. 23) was very different. Near the north-east corner of the excavated area was uncovered a small pit *ca.* 900 x 700 mm in plan and 350-600 mm deep. In it was a secondary human burial with partly disarticulated bones carefully placed in a neat pile *ca.* 600 x 400 mm in plan. Here the skull was at the east end of the remains opposite to the situation at Burial 1, but as in the other example the head had been turned to face north. The remainder of the upper part of the body lay on its back, with the two femurs laid on top, parallel to the backbone in an east-west orientation. Some ochre and quantities of charcoal were associated with the remains which were more fragile than those of Burial 1. The massive bones show this to have been an adult, in all probability male.

Patu onewa

A patu blade (Fig. 40) was found in two pieces at the east side of Area III. The larger part came from square J10 and the smaller from J6 some 4-5 m away. The fragments fitted together to make up the 117 x 109 mm, 19 mm deep, blade end of a well finished weapon in green Waiheke Group greywacke. The larger piece shows signs of having been subject to heat and the shape of the break itself suggests fire and not breakage as a result of being struck. In this respect it is interesting that the patu was found close to the east wall of the house; it once may have been hidden in the thick raupo wall and have been destroyed in the fire that consumed the building.

Nephrite

From metre square D2, among the hangi scoops at the north-west corner of Area III came a tiny (9 x 6 mm) piece of nephrite jade. Polish on one flat side suggests that it was once part of an adze or chisel.

Bone artefacts

Bone artefacts recovered from Area III were a fragment of bird spear (Fig. 48) and fishhook point fragment (Fig. 45). The former was found in square 17 associated with the house floor surface. It is 50 mm long and although not charred on the surface is brittle as though having been in a fire. The 15 mm fishhook point (from J7) probably comes from a two-piece bait hook of the type called by Fisher (1935:294-297) the 'Oruarangi point'.

Obsidian

A total of 1077 pieces of obsidian weighing 6071.5 g were recovered from Area III. This was recorded on excavation as having come mostly from Layers 1 and 2 with some material from disturbed surface silt and some from Layer 3. It is, however, not possible to assign the various layers to different occupation periods and for the purpose of the following discussion all obsidian is combined (see Fig. 28).

Distribution was concentrated over the central part of the excavated area. More than half the material by weight (52%) came from only 25 (of 107) one metre squares extending from C3 and C8 to J7 and I10. South of this was an area of very little obsidian, the weight from 25 m² here being only 5.2% of the Area III total. The north-east corner also has little obsidian although this results partly from J1-2 not being fully excavated.

Some aspects of the distribution may relate to the house that stood here. At or near the wall at the centre of both sides are metre squares with comparatively large quantities of stone (C3-6, C8 and I7-10, J7-8) which may indicate storage along the walls or perhaps clearing the house floor of sharp flakes. Adjacent unexcavated areas east and west would need to be looked at to see if the house walls do indeed confine the stone and the activities represented. Immediately to the rear of the house are several squares (D-I13) with no obsidian or very little, suggesting that to some extent at least the rear wall confined the activities represented. A large (271.1 g) core piece of very high quality stone in C13 may have come from the rear wall itself.

		D		E		F		G		H		I		J	
1	C	18	5	7	3	5	8	2							
		48.4	74.3	30.6	43.7	6.8	39.4	6.8							
2	C	20	18	13	29	16	1	5							
		48.6	97.7	98.4	62.7	64.1	3.6	4.2							
3	3	27	9	11	13	12	4	5	3						
		117.2	38.3	58.8	33.9	42.4	13.9	22.5	37.1						
4	4	22	9	15	15	10	12	14	10						
		67.2	48.2	74.2	106.4	88.4	61.0	64.8	43.2 G 0.3						
5	5	29	7	18	14	3	3	16	35						
		469.9	9.1	148.0	67.0	20.2	2.1	60.3	61.3						
6	B	30	2	7	32	8	6	21	13						
		96.9	22.9	81.5	197.6	55.5	57.3	31.6	55.1 W 28.1						
7	7	4	3	3	11	13	8	17	19	28					
		10.0	14.0	27.3	56.2	60.1	78.0	55.7	135.4 W 12.8	178.7					
8	8	4	10		5	29	10	16	15	26					
		33.2	135.4		22.2	179.6	20.2	56.0	81.0	87.6 G 0.3					
9	9	5	2	5	37	7	3	20	8	17					
		26.1	13.2 G 2.0	38.9	281.6	10.3	45.3	41.0	141.6	58.4					
10	10	4		3	2		8	6	22	17					
		27.6		26.7	3.1		7.7	19.4	169.9 W 93.1	19.6					
11	A	5	5	1	2	2	5	11	14	5					
		50.6	38.6 G 4.4	23.9	2.7	1.3	13.3	6.7	62.9	11.2					
12	12	1	5	5	3	7	12	7	6	33	7				
		4.2	55.2	18.6	10.1	15.8	74.6	57.6	9.7 G 0.9	97.5 W 0.6	10.8 W 0.1				
13	13	2	2			1			4						
		64.8	274.4			13.8			8.3						

Fig. 28. Area III. Obsidian distribution. In each metre square is given number of pieces and total weight. 'W' refers to material identified as having come from the Waihi source, 'G' refers to pale grey obsidian.

As in other parts of the site the vast majority of obsidian in Area III is green in transmitted light, and almost certainly originates in Mayor I. Seventeen pieces of total weight 155.2 g (2.56% of the Area III total) are grey. Several of these have been identified by Moore as having come from the Waimata Stream (Waihi) source (Moore & Coster 1989), five being positively identified and another five being possibly from that source. Seven small pieces Moore does not assign to any particular source although some of these also may be from Waimata Stream if we are to judge from their similar location: Waihi and unidentified grey obsidian alike are largely confined to the south-east parts of the site (see Fig. 28). A group of four pieces identified as possibly having come from the Waimata Stream source retain areas of cortex. This is in marked contrast to the Mayor I pieces less than 1% of which have original cortex from flow margins or subsequent beach boulders.

Sixty-five obsidian pieces weigh more than 20 g. The remainder of the material can be briefly summarised as follows: 0-1 g 40.6% of pieces; 1-5 g 36.2%; 5-10 g 9.7%; 10-20 g 7.4% and more than 20 g 6.0%. Few of the pieces smaller than 5 g show signs of deliberate preparation or of subsequent use. Even some of the largest pieces show no sign of having been used as tools. While it is often difficult to be sure of deliberate fashioning of obsidian tools, examination of the Area III material suggests that approximately 20% may be deliberately made flakes or are pieces from which flakes have been struck. Only 107 pieces (9.9%), however, have been identified from edge damage as having been used as tools, probably in the working of fibre or wood.

Chert

From Area III came 462 pieces of chert of a total 3558.5 g weight. Like obsidian the material is treated here as belonging to the single Area III occupation period which relates to the house floor and area immediately surrounding (see Fig. 29).

More than 83% of pieces, 64.4% by weight, were recovered from only 27 m² (HIJ 4-13) at the east side of the excavation. Of the remaining three-quarters of Area III a handful of large pieces in only three squares (D, E and G2) contributed 69% of the total weight. There is thus a very marked concentration of chert along the east side of Area III, especially at the south end where from only 6 m² (HI10-12) came more than half the total number of pieces. To some extent this is similar to the situation with obsidian where it was suggested that the concentration at or near the house walls reflects the habit of storing stone material here or perhaps sweeping clear the house floor. It may also reflect, more simply, the location of work areas where chert was struck off blocks to form useful sharp flakes or where the flakes themselves were used in a variety of cutting or scraping activities.

The range of cherts from Area III is very wide. As in other areas much the most abundant material is white, cream or pale yellow ochre in colour but with some pink or red. Many pieces display white cortex. This chert made up the greater part of the heavy concentration at the south-east corner as well as being common elsewhere. Other cherts include a variety of greys, blue grey and brown, often of high quality fine-grained material. Dark red chert and poor quality jasperoid stone are also represented as are brown and white chalcedonies. It is highly likely that most or all of the chert came from the nearby Coromandel Ranges and peninsula.

		D	E	F	G	H	I	J
1	C	2 4.3	2 11.0	3 45.6		1 1.3		
		4 116.4	4 452.6	1 1.2	4 302.6			
3	B	2 3.4	1 12.2	2 7.8	1 14.8			
4		2 1.2		1 7.0	2 9.7	2 11.9	2 18.3	6 44.9
5		3 0.7		4 73.5		1 141.5	3 1.3	10 134.5
6		1 1.6					4 25.3	8 45.8
7	A			1 0.1	1 1.7	6 192.1	2 4.2	4 16.5
8				5 19.0	8 11.5	11 56.2	6 8.7	6 9.4
9		1 93.2	2 10.8	2 4.1	3 0.5	6 12.3	12 21.9	10 64.7
10		1 11.7			1 1.9	29 85.8	14 40.5	10 33.8
11	A	1 6.6	1 4.1	1 1.9	4 14.9	1 4.1	40 88.4	15 115.7
12				1 0.8		2 2.3	63 580.3	80 432.2
13				2 9.4			8 56.7	24 35.8

Fig. 29. Area III. Chert distribution. In each metre square is given number of pieces and total weight.

The great majority of individual pieces of chert are very small, being less than 5 g, and in many cases less than 1 g, weight. Eight pieces which together total 1608.0 g make up 45% of the total weight of stone. One of these pieces from metre square B9 is of high quality brown chert with some chalcedonic mottling and red and white cortex. This item fits well to the hand and displays considerable damage on two sharp edges. The other seven large pieces are all off-white with occasional pink and yellow colouration.

Almost all of the chert is waste, much of it shattered from cores or blocks of the most abundant pale, predominantly white or off-white stone. From a few square metres at the south-east corner came as many as 60 mostly small pieces, all apparently struck or shattered from the same piece of this stone. Many smaller groups of material from one parent block were found in other parts of Area III. Edge damage of sharp flakes to indicate use was rare. Only eight pieces displayed unequivocal damage through use as a tool, while another nine may have been damaged through use. Thus while 10% of Area III obsidian flakes show signs of use, only 1.7-3.7% of chert pieces were used as tools.

Kokowai

Throughout Area III and neighbouring Area IV, were found innumerable tiny pieces of ochre. Almost all was in the form of fragments of haematite raw material; some pieces may have been processed by grinding and mixing with shark oil. The abundance of ochre fragments in the Raupa site indicates much use of this material, probably to embellish architecture and portable wood carving, to colour cloaks and other clothing and to smear the body.

A few pieces of stone were used for ochre grinding. In metre square J8 was found a smooth water-rolled stone *ca.* 115 x 105 x 65 mm of fine-grained green Waiheke Group greywacke with areas of ochre over the surface. Another water-rolled stone, from E7, also has ochre on its smooth surface. This elongated stone measures 160 x 50 x 37 mm. Interestingly it also has some 'chatter' marks from use as a hammerstone and there has been a slight notch pecked out of one narrow side.

Among the large numbers of hangi and other waste stones piled along the sides of the Area III excavations one fragment was found to have ochre on it. The item was found at the south end of the excavation area. It measures 130 x 50 mm and 20 mm deep and is broken off a once larger piece. A natural flat surface of the angular rock is covered in wine red ochre.

A stone for which excavation records have been lost also probably belongs with Area III material. This stone is a fragment of a larger piece, flat-sided as a result of flaggy geological structure, measuring 160 x 60 mm and 45 mm deep. One side is covered in pale red ochre, with a small area subsequently ground clean of colour. On the other side are parallel marks of deeply scored grinding, with a patch of red and black pigment at one end.

From square I13 (see Fig. 23) came two fitting fragments of a haematite of igneous origin, mostly of deep wine red colour but weathered to soft brick red on one side. The joined size of the two pieces is *ca.* 53 x 25 x 12 mm. The material is of a quality and colour to make excellent kokowai. Interestingly the combined piece has been ground on one surface into a concave dish possibly as a result of being rubbed directly on to an object for colour.

Other stone

In addition to stone material dealt with in the above paragraphs, miscellaneous items recovered from Area III included quartz, petrified wood, greywacke, argillite, pumice and ignimbrite. The quartz item, (from square D1), is an 8.5 g piece of crumbly crystal aggregate — like similar material from Area I, it was possibly brought in as an abrasive. Three pieces of petrified wood are of identical cream and red material to that described from Area I. All three came from the east side of Area III (G12, 15 and J12) and together weigh 237.5 g, two of them being of suitable shape for further fashioning into lure shanks.

As with other parts of the Raupa site, Area III was found to include natural fragments of pumice, mostly small and water-rolled to a rounded shape. One large piece *ca.* 100 x 65 x 35 mm from the house back wall (E12) is black with charcoal and has been heavily used on one flat surface as a polishing stone.

A group of waste greywacke or argillite pieces mostly result from the fire shattering of oven stones. Unlike the vast majority of such pieces from Area III, originating in the northern and eastern parts of the excavation, the retained pieces are of fine-grained stone, mostly of adze making quality and occasionally exhibiting conchoidal fractures. Two pieces of fine-grained grey-green argillite from squares H8 and G11 are similar enough to have come from the same water-rolled stone. Both have conchoidal fractures and may have been deliberately struck. A large fire shattered piece from a water-rolled green greywacke boulder (I9) has had one blunt edge used as a crude cutting or grinding tool. Other waste from adze quality material includes a small flake of very fine-grained greywacke from F7. More unusual is a fragment of soft black argillaceous material, possibly graphite, which may be the result of deliberate flaking. It was found at the house back wall in square E12.

Material of European origin

Some very rusty fragments of iron, a piece of window glass and the remains of a tin matchbox make up the material of European origin recovered from Area III. The highly degraded, *ca.* 70 x 40 x 26 mm, matchbox came from the surface silt and disturbed soil (Layer 1) in square J2. It is embossed “BRYANT & MAY/WAX VESTAS/LONDON”, and is identical to the box illustrated by Bedford (1958:54 and 58 top left) which is a type dated to *ca.* 1880. Four other fragments of completely rusted iron may have been pieces of wire or nails. All came from the surface layers of the site. The only piece of glass came from J8, Layer 1, and comprises a tiny fragment of thin colourless window glass.

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Fig. 30. Areas III and IV, 20 February 1987. View to north.

AREA IV (Figs. 2,30-33)

The 5 x 5 m Area IV excavation was opened up 5 m north of Area III. The same grid line laid out at 345° provided the east side of Area III and the west side of Area IV (see Figs. 2,30). Unlike the former, Area IV was excavated throughout to the bottom of the occupation material.

Stratigraphy

Area IV was excavated to a maximum of almost 1 m depth, most of the square finishing at *ca.* 600 mm. Within this were deep blocks of relatively indifferntiated fill, Layers 2, 4 (Fig. 31).

- Layer 1. Fine yellow mine tailings and yellow-brown water-laid silt extended over the whole square to a depth of 50-80 mm.
- Layer 2. Mottled and crumbly chocolate brown loam, 180-300 mm depth. This layer contained plentiful hangi stones, especially at lower levels, also large quantities of obsidian, less of chert, much fine ochre throughout, and charcoal which was abundant in places.

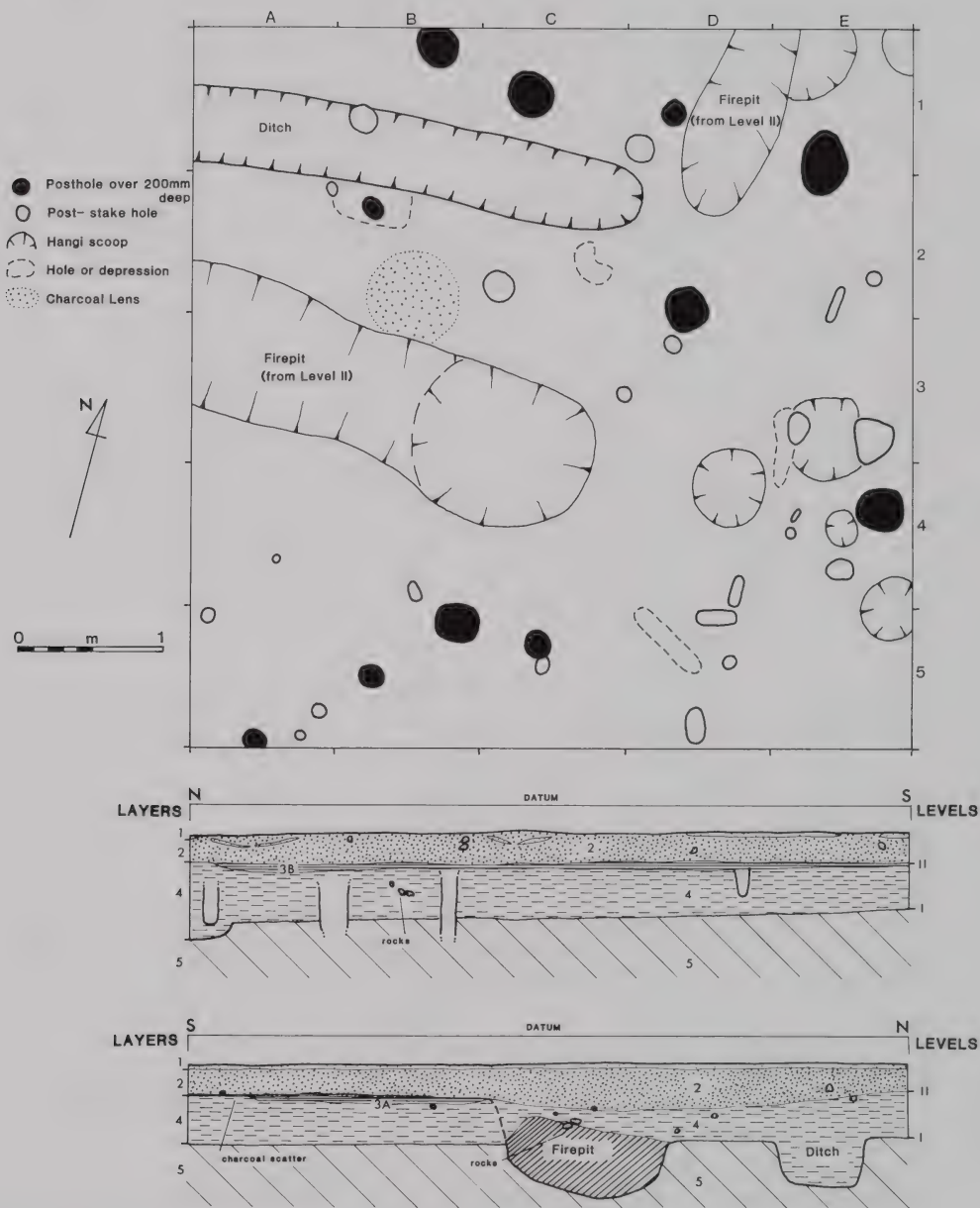


Fig. 31. Area IV. Level I plan and east and west stratigraphical sections. Layer descriptions in text.

- Layer 3. A variable occupation surface extended over the whole square, being especially distinct in the south-west corner and along the east side (see Fig. 32). In the south-west corner Layer 3A comprised a compacted surface identical to the adjacent Area III house floor and the hard surface in front of the house. Here the compacted layer was 60-80 mm deep with extensive areas of charcoal. At the east side of the square Layer 3B took the form of pale silty sand, 40-100 mm in depth (Fig. 31, east section) and extending 1.5-2 m from the baulk. Here there were many broken oven stones, especially at the north of the square, numerous obsidian and chert flakes and other cultural material.
- Layer 4. A homogenous grey/brown silt loam, 200-600 mm in depth. This layer contained some obsidian and chert material and rare hangi stones.
- Layer 5. Yellow clay natural base of the site.

The occupation sequence

At Area IV are two major occupation periods, almost certainly interrupted by an episode of flooding which deposited a large quantity of silt over this part of the site. Following the later occupation period a second major flooding episode again covered Raupa in silt. Following this there was sufficient time for a well structured loamy soil to develop before being in turn buried by the rock flour and silt of the late 19th and early 20th century.

Level I. Dug into the natural clay base of the site were several postholes, a 300 mm deep ditch and some shallow scooped depressions (see Fig. 31). Two firepits penetrated the natural from the top of Layer 3, and are thus part of the Level II occupation. There was little artefactual material associated with Level I except for some obsidian and chert pieces (Layer 4 in Tables 8, 9), innumerable tiny fragments of red ochre and occasional oven stones.

There are some interesting aspects of the Level I posthole pattern. At the north-east and south-west corners of the square are strong lines of comparatively deep post holes. These are not straight, so that they suggest internal fences or palisades rather than the walls of a house or other roofed structure. Some elongated slots of postholes extend from the south baulk 3 m up the east side of the square. These indicate the use of planks and probably make up part of the wall of a roofed building which to judge from the use of dressed timber, may have been a sleeping house or dwelling rather than a cooking shed or other less formal building.

The purpose of the ditch running into the baulk at the north-west corner is not clear. In a low lying site such as Raupa ditches may occasionally have been dug to clear surface water. In any event the evidence of Level I occupation here was soon to be buried by the Layer 4 silt, which, judging by the homogeneous nature of the material may have resulted from a single flooding episode. On top is evidence of the second occupation period.

Level II. The second occupation period at Area IV (Fig. 32) is contemporary with construction and use of the Area III house. At the south-east corner of the square was found the edge of the compacted surface which extended in the adjacent square across the front and into the house. A confined area of fired stones and charcoal on this surface must relate to an event late in the second occupation period.

Two deep pits dug from the surface of Layer 3 through Layer 4 into the basal clay contained plentiful hangi stones, charcoal and ash. Lenses within the pits indicate repeated re-use. Although unusually shaped for hangi pits these were in all probability used for cooking. From the bottom of the large Firepit 1 came some massive pieces of charcoal and charred timber identified as kauri. At the top of Firepit 2 was found the charcoal remains of totara.

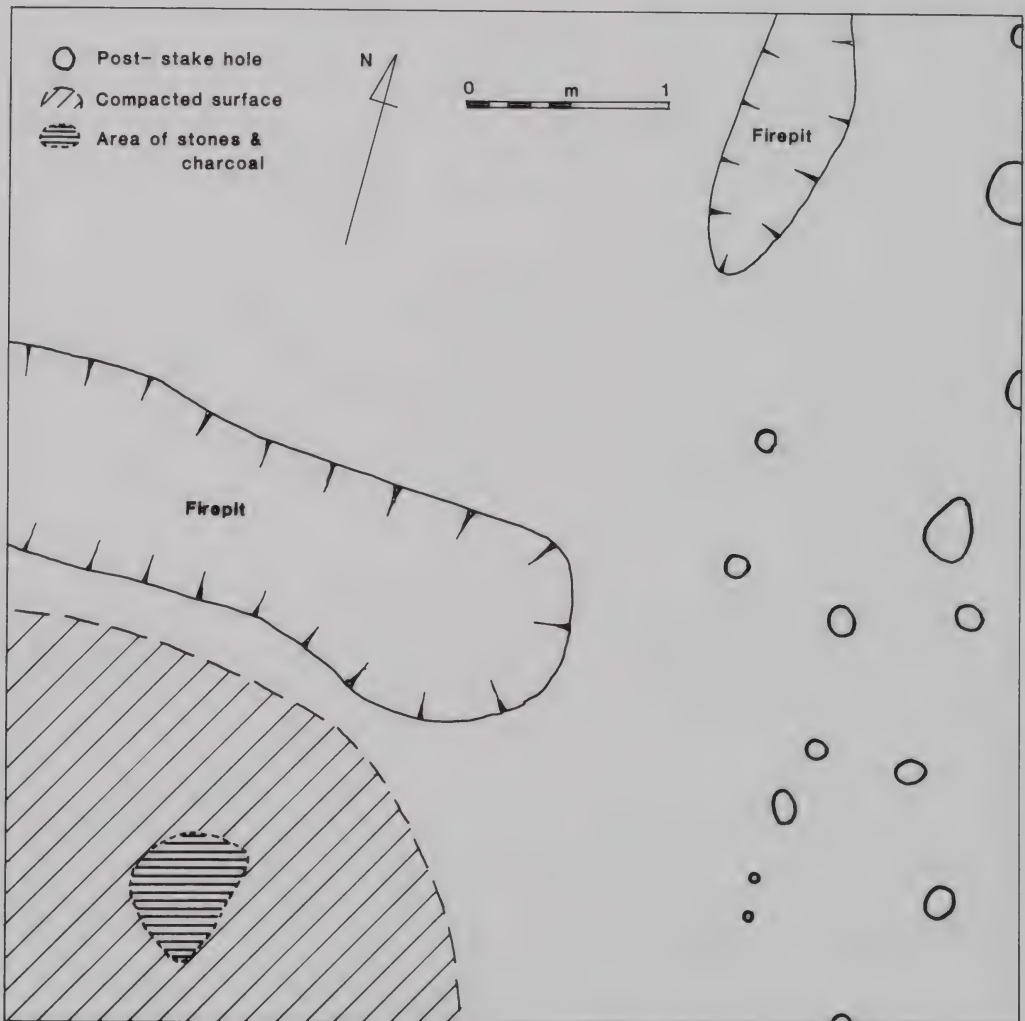


Fig. 32. Area IV. Level II plan.

At the east side of the square are a number of post and stake holes which indicate a light shed or fencing here. Everywhere throughout Area IV were tiny fragments of ochre to show a considerable use of this decorative material. Two fragments of highly degraded kauri gum were recovered from squares D-E2, Layer 3.

Bone and shell was very rare and mostly fragmentary. From the firepit fill came the mandible of a young dog (metre square C3), and what are probably whalebone fragments (C4). A second dog mandible was found in E2. One human tooth was recovered in B3. Three other bone fragments could not be identified. Fish were represented by one snapper tooth and shells by a bivalve fragment, the epidermis of a green mussel and two unidentifiable pieces.

Adzes

One complete adze, a half adze and a polished fragment were found in Area IV. The complete item came from Layer 3B, square E1 (Fig. 36). It measures 114 x 33-61 mm and is approximately 25 mm deep. The cross-section is sub-rectangular with comparatively sharp edges. The finish is polish over flake scars and hammer-dressing. The well-defined bevel has been subject to regrinding and the polished butt shows slight haft-polish. The raw material is a fine-grained green greywacke, probably of Waiheke Group stone.

The blade half of a rectangular cross-sectioned adze was recovered from metre square B3, like the complete adze it was from the Layer 3 occupation surface. What remains measures 95 x 55 mm and 26 mm deep, the complete adze may have been 150 mm long. The adze is roughly broken to indicate the comparatively poor quality of the coarse-grained green greywacke, again probably originating from among Waiheke Group material. The battered blade shows signs of heavy use. The original adze was probably polished throughout over hammer-dressing. It has been subject to heat possibly before breaking or, perhaps more likely, the heat of a fire itself causing the break.

In square B1, Layer 2, was found a 22 x 15 mm fragment of a highly polished adze in fine-grained dark grey greywacke. Parts of three polished surfaces, the bulb of percussion of the fragment itself and the pattern of previous flaking all suggest that the flake came from the blade end of an adze which was being reworked, possibly following accidental damage.

Patu muka

Fragments of two patu muka, both from Layer 2, were found in Area IV. From metre square D5 came a well-finished handle (Fig. 41) 115 mm in length, oval in cross-section at the butt end and almost circular at the break. At the butt end can be seen the original surface of the elongated water-rolled stone used for this pounder. The raw material is a pale green igneous rock.

The second item, from C2 (Fig. 42), is the working end of a pounder 105 x 89 mm and as much as 40-55 mm deep. The original stone surface can be seen on the two larger sides; the narrow sides and the end have been fashioned by hammer-dressing.

The minimal work done to form a patu muka from a stone of approximately the right shape is reminiscent of a number of Oruarangi examples. The raw material is a coarse grey andesite.

Incised stone

Fig. 44 depicts a most unusual item from square D2, Layer 3. A broken fragment of very fine-grained sandstone hoanga (grindstone) measures *ca.* 80 x 75 x 40 mm. On the slightly concave (ground) surface of one side has been roughly scratched a design which includes an open spiral and a short length of four curving parallel lines. On the broken back of the stone and along one edge of the grinding surface are areas of red ochre — some ground into the surface, others apparently congealed from drops of 'paint' formed of ochre and shark oil. The latter have the appearance of dried blood, but testing was negative for blood and prepared ochre paint seems most likely. Within the concave grindstone surface is an area of black pigment into which the design has been scratched.

The stone appears to have undergone several uses. Before it was broken, the originally larger piece was used as a fine grindstone on two facets at least. Some ochre grinding may have been carried out. The design on the remaining fragment is similar to a male tattoo design on the nose, upper cheek or chin (cf. Simmons 1986:26), and may thus have been a sketch carried out by a tattoo artist. The black colour may be the remains of tattoo pigment placed on the stone surface for the tattooist's use, or rubbed onto it in the course of resharpening tattoo chisels.

Pumice

The most important pumice item found in the 1987 Raupa excavations was recovered from metre square C3 at the bottom of the firepit dug from Level II. A well made pot (Fig. 43) was fashioned from a rounded piece of highly vesicular pumice. The hollowed-out interior is approximately 27 mm deep and 24-25 mm across at the lip. There are no residues to indicate what this pot was used for, indeed the interior is so clean that it does not appear to have been used at all. A tiny piece of ochre adhering to the outside only reflects the abundance of ochre fragments throughout Area IV.

Another piece of pumice *ca.* 65 x 45 x 28 mm in size, from the Level II surface, D2, has one side markedly dished, with four small holes within the concavity suggesting that it may represent an early stage of manufacture into a small pot. Alternatively, and perhaps more likely, the concavity and holes are the natural result of erosion of a soft part of the water-rolled pumice pebble. Approximately ten other small pumice fragments from Layers 1-3 are unmodified and were in all probability naturally deposited during periodic episodes of flooding.

Kokowai

The very large number of tiny pieces of kokowai in Areas III and IV has already been remarked upon. Two items relating to this are grindstones of flaggy ignimbrite with traces of ochre ground into the flat surfaces. Both are fragments broken from once larger pieces. One (B3, Layer 3) measures *ca.* 140 x 65 mm and 20 mm through,

with both flat sides extensively coloured with ochre. The other (B4, Layer 3) is triangular in shape *ca.* 80 x 60 mm and 37 mm deep. This piece retains only very faint traces of ochre and has been used for grinding not just on the flaggy surfaces but on a rough break as well as at two right-angled edges.

Obsidian

In Area IV was the greatest obsidian density of any of the excavated parts of the Raupa site. A total of 663 pieces weighed 4205.1 g, an average of 168 g per m². More than 77% of material by weight came from Layers 2 and 3, the Level II occupation which relates directly to the Area III house floor. Some material assigned to Layer 4 during excavation may also belong to the Level II occupation, especially in metre squares A2, A3 and B3 where comparatively large quantities of material for Layer 4 are shown in Table 8.

The predominance of very small pieces was even more marked than in Area III. Approximately 76% were less than 5 g in weight, 48% of the total less than 1 g. Of the remainder, 9.0% were 5-10 g, 7.7% 10-20 g and 7.3 % more than 20 g. The heaviest piece was a 196.4 g core extensively reduced by flaking which came from the Level II surface in C3. Of four other pieces which weighed more than 100 g, three belong to a single cache from metre square D2 (Fig. 33).

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Fig. 33. Area IV. Obsidian cache (metre square D2), 4 February 1987.

Almost all the obsidian is green in transmitted light and probably originates in Mayor I. Notable among the remainder is material identified as coming from the Waimata Stream, Waihi, source. Eight pieces weigh 173.2 g — 4.12% of the total Area IV obsidian. An additional 1.5 g fragment of comparatively black material from C5, Layer 2, is identified as possibly being from Waihi. Except for two small pieces from Layer 4, B2, all eight positively identified pieces come from Layer 3, that is, the Level II occupation surface. Among these are two cores from A3 (81.1 g) and C4 (64.7 g), both with areas of cortex and both illustrating repeated removal of flakes from the high quality opaque grey-green stone. A much smaller piece from E5 weighing only 8.3 g also appears to be a core remnant. None of the Waihi items show any sign of edge damage.

One 6.3 g piece from C5, top of Layer 4, is identified as possibly having come from the Whangamata source (see Fig. 1). There is a suggestion of edge damage at one margin of this well made flake. Other non-Mayor I material includes a good quality highly translucent grey obsidian of which six pieces, 21.0 g total, were found in D5, two pieces, 6.5 g, from E4, and one weighing only 0.1 g from square C3, all of them from Layer 3. Possible sources of this material include Taupo and Great Barrier I. Another three pieces of high quality black obsidian from D1, B3 and B4 total only 3.8 g in weight. The source is unknown. Material almost certainly from Mayor I makes up all the remainder, approximately 94.5% of the total by weight.

As Table 8 shows, more than 80% of Level II obsidian came from only nine metre squares: E1, D2, B-C3, C-D4, C-E5. There may also be a problem with the layer attribution of A2-3 and B3 material which suggests heavier concentrations of Layer 3 obsidian than is given in the Table. There is thus no marked concentration of distribution to suggest activity or working areas within the 25 m². A concentration of chert in the south-east corner of Area IV is to some extent reflected with obsidian but the latter is also abundant in the centre, west and north-east of the excavation area.

Notable was a cache of nine large, seven small and two tiny fragments of Mayor I obsidian from metre square D2 (Fig. 33). The cache weighed 771.5 g in total. It came from a part of Area IV where there was a large number of fire cracked and other stones on the compacted Level II surface. Among the large pieces which average 77 g, seven display some edge damage. Only two of the smaller pieces (average weight 11 g) show any sign of having been used.

Including the cache items, approximately sixty pieces (*ca.* 9%) show some sign of having been used for cutting or scraping. Most of the edge damage is on straight edges to indicate use as a knife; a very few items are damaged within a notch or curve suggestive of operation as a spokeshave.

Chert

A total of 126 pieces of chert weighing 1736.1 g was recovered from Area IV. As with obsidian some chert was found in the uppermost disturbed layer, including one 420.0 g piece of coarse-grained off-white and yellow material from metre square D4 which lifted the total Layer 1 weight close to the Layers 2 and 3 figure (see Table 9).

Table 8. Area IV obsidian distribution, from 663 pieces of 4205.1 grams.

Square	Layer 1		Layers 2, 3		Layer 4	
	No.	Wt (g).	No.	Wt (g).	No.	Wt (g).
A1	3	3.8	13	43.2	6	7.6
B1	2	4.2	9	13.4	1	2.8
C1	14	21.2	10	3.7	1	1.1
D1	1	1.6	20	66.6	1	13.7
E1			29	140.8		
A2	1	18.1	16	63.1	11	126.5
B2	1	2.1	13	22.4	2	1.1
C2	2	14.5	4	11.4		
D2	2	18.9	31	797.2*		
E2	13	17.2	21	27.9	4	11.2
A3	2	13.9	3	85.1	23	96.6
B3	1	1.4	26	337.4	29	313.0
C3	3	0.8	28	163.9	13	38.8
D3	2	16.5	20	42.7	1	0.5
E3	2	0.9	9	50.9		
A4	2	9.7	4	20.1		
B4	3	2.5	8	29.4		
C4	9	62.3	41	513.9	2	13.3
D4	6	15.8	19	176.5		
E4	9	23.5	26	48.9		
A4			4	8.7		
B5	2	49.9	20	84.9		
C5	5	13.1	64	208.9	1	6.3
D5	3	3.5	33	163.6	1	4.8
E5	2	0.7	31	125.3	2	1.8
	90	316.1	502	3249.9	98	639.1

* Includes cache of 771.5 g

More than 60% of all chert by weight came from just four square metres (D-E4, C-D5) at the south-east corner of Area IV (Table 9). Among this, however, was a substantial quantity found in Layer 1 which was made up of silt and disturbed soil, so that we cannot be sure where the chert originated, or in some cases, if it is even cultural in origin. Of the Layers 2 and 3 material, most or all of which relates to the Level II occupation, 71% of chert was found in only 6 m² at the south-east corner of the excavated area (CDE 4 and 5). The same six metre squares also produced above average quantities of obsidian which does suggest that here there was a work area related to the use of sharp cutting tools, or the preparation of those tools.

Table 9. Area IV chert distribution, from 126 pieces of 1736.1 grams.

Square	Layer 1		Layers 2, 3		Layer 4	
	No.	Wt (g).	No.	Wt (g).	No.	Wt (g).
A1			2	5.2	2	38.2
B1	1	1.9	2	3.4	1	1.0
C1	1	2.3			2	2.5
D1			2	12.7	1	2.3
E1			1	0.6	2	20.0
A2			5	64.2	1	43.4
B2			1	3.3	1	8.5
C2	2	0.6				
D2					3	20.0
E2			7	7.9	1	11.0
A3			1	5.5	1	0.3
B3			3	38.9		
C3			4	25.3	1	0.5
D3	2	31.4			2	117.8
E3			6	12.0	2	6.1
A4						
B4			3	25.9		
C4	1	0.6	4	37.8		
D4	3	428.9	5	106.7		
E4	3	43.8	7	113.9		
A5			2	32.9		
B5			3	4.1		
C5	2	100.4	7	130.6		
D5	3	2.0	6	154.2	1	7.1
E5	3	1.7	13	58.7		
	21	613.6	84	843.8	21	278.7

Cherts in Area IV included a range of materials and colours. Most pieces were white or creamy white, sometimes tending to pink, red and yellow ochre in colour, or with a mix of white and these colours. Off-white stone was often coarse-grained and poor quality. Red chert of comparatively poor quality was also present in some quantity. Good quality jasper and white or off-white chalcedonies were recovered as were fine-grained black, grey and brown translucent and opaque cherts.

More than 80% of pieces were waste with no sign of deliberate manufacture or subsequent use. Among other pieces are some worthy of individual notice. From metre square D3, Layer 3 came a *ca.* 55 mm diameter, 25 mm deep, piece fashioned into a hammerstone but not yet used for that purpose. The stone is a banded grey and pale yellow-brown chert. The weight is 112 g. A 71.2 g water-rolled stone of high quality jasper which may have been used as a hammerstone, was found in C5. From D4 Layer 2 came a chunky 60 x 40 x 40 mm core weighing 100 g from which flakes have

been struck on every surface. The chert is red, white and grey with some crystal inclusions. A more interesting core of fine-grained yellow-brown chert with some red cortex was found in A1, Layer 4. It weighs 24.5 g and is 32 mm long and 29 x 22 mm across a cortex platform. From the edge of the platform successive flakes have been struck to reduce the core to its present remnant, almost too small for further successful use. While the D4 core resulted from flakes struck from its entire available surface, this core displays the results of flakes carefully taken off from the platform circumference only.

Used flakes include some interesting pieces. A coarse-grained pink-brown chert 35 x 25 x 16 mm has been ground at a sharp edge indicating use as a 'cutter' or 'saw' (E4, Layer 2). From the same location is a 28 mm long fine-grained red-brown chert flake that shows some unifacial edge damage as well as having been polished through use. A similar, 29 x 25 mm and 3.8 g, yellow ochre colour chert flake from E3, Layer 4, also has unifacial edge damage and edges polished smooth through use. From E5, Layer 3B, came a piece of jasper 25 mm in maximum dimension and weighing only 2 g with bi-facial edge damage and polished edges — again a well used piece. These three pieces are very similar in size and shape and in the results of use which appear on their sharp edges. Another twelve pieces of chert also display some unifacial edge damage as a result of use. This includes white-yellow-grey pieces, yellow ochre and pink material and red and white chalcedonies. Most used pieces are small, weighing only a few grams. A further five or six pieces show edge damage which may be the result of use.

Other stone

Among other stone material not already introduced is andesite, petrified wood and ignimbrite. The largest and most unusual group of material is petrified wood. Six pieces include two small fragments of less than a gram and four larger pieces from squares A2 and A3 which together weigh 353.5 g. These were assigned to Layers 1, 2 and the interface of 2 and 3 during excavation, but almost certainly have come from one parent block associated with Level II occupation. A common use of petrified wood was in the manufacture of lure shanks — two or three of the larger pieces from the north-west corner of Area IV are of a size and shape which suggests initial shaping for this purpose. The raw material is cream and pinkish red in colour with one piece carrying a small patch of crushed ochre. A fragment of fine-grained siltstone was possibly used as an abrasive in grinding. From D4 Layer 2 came a tiny piece of pink cellular material which may be organic in origin but for which no identification can be offered.

Material of European origin

The only items of European origin to be found in Area IV were two fragments of bottle glass and flat piece of copper. The bottle glass came from squares A1 and C1 and were assigned to Layers 2 and 1 respectively. The tiny green glass fragments have probably come from two different bottles, one of which may have been of nineteenth century wine bottle type (see, for examples, Prickett 1981:397, 399, 401). The copper piece is slightly concave in shape and 22 x 22 mm in size. It came from the surface layer

of water-laid silt and mine tailings, square D1. Nothing can be said of its purpose. The wine bottle fragment may relate to the Maori occupation of Raupa; the other two items clearly belong to a later, European, period. Two pieces of what looks like coke were found in Layers 1 and 2 in adjacent squares B1 and B2.

AREA V (Figs. 2,34,35)

Area V was first opened up on 21 January but because of other priorities it was 2 February before work began in earnest at this part of the site. Later in the excavation season the focus turned to Area III and work on Area V again suffered from a lack of labour and time. Area V was thus not completely finished but enough was excavated to give a broad outline of the history of this part of the Raupa site. Area V was located 15 m north of IV, with the west side of the new square sharing the same 345° grid line as the east side of Area IV (Fig. 2).

Stratigraphy

Six layers and several lenses of material were identified above the natural base of the site (Layer 7). Layers 1-3 all relate to the period of mining operations up the Karangahake Gorge and as such are contemporary with Area I Layer 2, Area II Layers 2 and 3, Areas III and IV Layer 1.

- Layer 1. Yellow rock flour and silt extended over the whole square to a depth of 25-100 mm.
- Layer 2. A 10-40 mm layer of cream coloured silty clay with very fine horizontal laminations. This probably signals localised episodes of ponding in what is a slight depression in the generally level ground surface.
- Layer 3. More rock flour 30-60 mm in depth.
- Layer 4. Dark brown sandy clay with abundant charcoal, 50-160 mm in depth. Within this layer are patches of rock flour probably brought down as a result of late 19th or early 20th century ploughing. Layer 4 tends darker towards the bottom.
- Layer 5. Midden comprising crushed shell, very rare bone and large quantities of charcoal in a black sandy loam matrix.
- Layer 6. Yellow-brown sandy clay with some pieces of charcoal. The base of the site is 300-600 mm below the present ground level.
- Layer 7. Natural yellow clay.

The occupation sequence

Three periods of human activity are represented by the several stratigraphic layers in Area V. Two relate to Maori occupation of Raupa and one to subsequent use of the area.

Level I. Postholes and hangi scoops are dug into the surface of Layer 6, while on the surface are piles of hangi stones (Fig. 34). In the small area exposed to give some knowledge of lower layers of Area V there were too few of either to provide any pattern. Indications are of a much used and re-used part of the Raupa settlement with numerous hangi and related shelters or fences. From one of the hangi pits charcoal was recovered, identified as predominantly tawa with some mapou and rare ramarama.

Level II. The second use of this part of the Raupa site (Fig. 35) saw the dumping or laying down of crushed shell midden, some bone, large quantities of waste stone fragments and charcoal, all in a rich black sandy soil. The crushed nature of the shell and other waste indicates that this material was shifted about before being dumped here.

Shell fragments were mostly pipi with some *Macra* sp. and cockle and other species such as green mussel and speckled whelk (*Cominella adspersa*). Mammal bones included dog pelvis fragments, metacarpals, phalanx, femur shaft and a possible scapula fragment. A single kiore tibia was identified. A much larger tibia fragment was possibly human. Rare fishbone included snapper, red gurnard and eagle ray, and possibly also blue mackerel, trevally and eel (*Anguilla* sp.).

Level III. Some time after rock flour began to come down the Ohinemuri River from the quartz crushing batteries in the Karangahake Gorge this part of the Raupa site was ploughed, the plough turning over the ground and bringing down rock flour. Five discrete lenses were visible in the north section and strips of rock flour extended from the south-west to the north-east across the excavated square to indicate the direction of ploughing.

Fishhook

An externally barbed fishhook fragment (Fig. 46), probably of an 'Oruarangi point' (Fisher 1935), was found in metre square D3 on the surface of the midden layer. The piece measures only 13 mm in length and has been charred black by fire.

Obsidian

Area V produced very little obsidian. This was partly because not all of the material was removed, although Layer 4 which provided most was entirely excavated. There was a marked concentration of material at the north end of the square (see Table 10). Clearly, however, there was little work with obsidian at this part of the site. A total of only 32 pieces weighing 133.9 g cannot compare with 4.2 kg removed from nearby Area IV. Area V material was all of characteristic green Mayor I material.

Of the small quantity only 20% was less than 1 g in weight. This may be compared with Areas I, III and IV where such very small fragments comprised 40% of the total. As these are probably waste from the manufacture of larger flakes the comparative lack of very small fragments may be interpreted as indicating a lack of obsidian



Fig. 34. Area V. Level I surface, 14 February 1987. View to west.



Fig. 35. Area V. Level II surface, 11 February 1987. View to west.

Table 10. Area V obsidian distribution, from 32 pieces of 133.9 grams.

Square	Layers 1-3		Layer 4		Layer 5	
	No.	Wt (g).	No.	Wt (g).	No.	Wt (g).
A1			1	3.4		
B1			7	24.7	1	5.3
C1			2	29.4		
D1	3	5.5	2	20.0		
E1			1	0.7		
A2						
B2						
C2	1	18.1	2	7.0	2	3.0
D2			1	3.0		
E2			1	0.4		
A3			2	2.1		
B3			2	6.1		
C3						
D3			1	1.0		
E3						
A4						
B4						
C4						
D4						
E4						
A5			1	0.5		
B5						
C5						
D5			2	3.7		
E5						
	4	23.6	25	102.0	3	8.3

working in the Area V part of the Raupa site. Of the remainder, 60% was 1-5 g, 9% 5-10 g and 9% 10-20 g. Just one piece was found of more than 20 g, a 27.0 g piece from metre square C1. On five pieces only was edge damage noted to indicate use as a tool.

Chert

Only three pieces of chert weighing a total of 15.0 g were recovered from Area V. All are waste with no sign of any use.

DISCUSSION

The Raupa settlement

Archaeological trenching and excavations in 1983, 1984 and 1987 throw considerable light on the defences and interior organisation of the Raupa settlement. Work by Phillips has shown that behind the outer of three ditches which cut the narrow neck of the Waihou River bend was a defended area of two hectares (Phillips 1986:110). Natural erosion of the site over the century and a half since abandonment suggests that this is a minimum figure. Raupa was thus, for some part of its history at least, a pa or defended settlement of very considerable size.

Behind the defensive ditches trenching and excavation has nowhere shown waste or completely unoccupied ground. Work carried out has, however, been of a salvage nature on a comparatively limited part of the site. Large parts of the formerly defended area have been destroyed both at the north end of the site and beneath and adjacent to the stopbank; or were unavailable for investigation outside the stopbank to the south-west (see Fig. 2). Thus we cannot be sure that all the defended 2 ha or more was occupied to the extent that has been shown by archaeological work carried out in what was after all, the central part of the pa.

Within that limited part of the Raupa settlement archaeology has shown a variety of purposes to which different parts of the site were put. That there was some continuity of these activities in the fully excavated Areas I, II and IV suggests both that there was a continuity of settlement from the first Maori occupation period to the last, or in any event that the basic arrangement of such living places depended upon clearly understood principles. Such principles would depend upon a mix of practicality, and of encompassing spiritual ideas and the prohibitions and directions they engendered which throughout the world govern the form and use of vernacular architecture and living spaces. At Raupa the shape of the house, the separation of cooking and dwelling spaces, the necessary open ground before the dwelling house, the proximity of food storage to cooking areas and the internal fences or stockades which direct routes through the pa all provide evidence of settlement plan. The house will be discussed separately, but first evidence of the wider settlement arrangement needs to be examined.

Because Areas III and V were not fully excavated it is only the last Maori occupation period for which we have information from all five areas excavated in 1987. In addition, of course, the 1983 and 1984 work tells us much concerning the settlement at this late stage. Trench A (see Fig. 2) which was put through the site by Simon Best, is illustrated by Phillips (1986:97). Throughout the long east-west trench and also in the short northerly extension large quantities of shell midden and concentrated charcoal lenses were revealed. Only at the extreme west end were they absent, at least as dense deposits of shell and charcoal in primary deposition. Throughout most of Phillips' 1984 Trench E (see Fig. 2), where it cuts the Raupa site, were shell midden and deposits of charcoal and charcoal rich soil. In her area '1' Phillips reported what appears to be a double line of post and stakeholes running parallel to the river bank (Phillips 1986:99; for a plan see Phillips 1985, fig. 20). In area '2' she uncovered postholes, stakeholes and firescoops dug into what might be a

housefloor (Phillips 1986:102; plan in Phillips 1985, fig. 19), with what may have been a storage pit beneath. In the 1984 area '3' (see Fig. 2) was a possible bell-shaped pit (Phillips 1986:102,104).

The work done in 1983 and 1984 shows extensive cooking activity and the dumping of midden, which in many areas, especially the length of Trench A, overlay the postholes of earlier structures. Cooking and refuse disposal was the final Maori activity here but before then the area of Trench A especially was thickly covered with wooden structures, fences or buildings, illustrated by the numbers of postholes in the section drawings (Phillips 1986:97). Thus the final occupation period at Raupa saw much of the site given over to open ground in which the limited excavation areas revealed few hangi scoops which might have been the source of the widespread midden and charcoal waste.

In the 1987 Areas I and II the evidence is the same. The final Maori occupation levels (III-IV in Area I and Level III in Area II) are marked by widespread often crushed (redeposited) shell midden and charcoal. In Area I the surface of Level III, illustrated in Fig. 11, shows clearly the nature of this surface, heavily trodden, but except for two or three isolated postholes revealing no sign of activity or use. The picture at the surface of Area II Level III was the same but without even a posthole to break the unrelieved surface. At Area I, the Level IV surface was essentially the same as Level III except that the surface has been further raised, apparently by flooding, at this comparatively lowlying edge of the site. Subsequently thin lenses of charcoal settled over parts of it. These are fragile and yet intact, to suggest that at the time this part of the Raupa site had little human traffic.

North of Trench A the 1987 excavation presented a very different picture. In Areas III and IV the late occupation period is marked by the large house and its immediate environs. This almost certainly dates from the period in the early 19th century during which Marsden visited Raupa. It is worth noting that he refers to, "... natives' houses here [which] were much larger and better built than any I had seen in New Zealand" (Elder 1932:255), so it is apparent that the Area III building was by no means the only one. Indeed, there was almost certainly at least one even larger house as it is doubtful the five Europeans listed by Marsden, as well as seamen and approximately 50 Maori, could have fitted into the Area III house for the night.

Areas III and IV were very different from I, II and V in the lack of shell midden and black charcoal soil which in the latter areas marked the last occupation period of the Raupa site. Even the cooking area at the north-west of Area III did not appear to have had repeated use; also the shell midden along the east side was mostly clean and gave every appearance of being deposited but once and not subsequently shifted about to crush the shell and make everything black with charcoal. In Area IV midden was almost entirely absent. It is clear, then, that in the final phase of occupation Areas III and IV were used very differently to other excavated parts of the site. Here was a dwelling of some importance, not to be defiled by cooking in the immediate vicinity and used for a variety of activities both social and economic, some of which have left signs and some of which may be inferred.

Foremost among activities which have left clear signs is stone working and working with stone tools in fashioning articles from wood or fibre. Ninety-two per cent of obsidian recovered in the 1987 excavations and 95% of chert came from these two areas. Also from here came two adzes, pieces of two patu muka, a pumice pot, incised stone, patu onewa blade, and fishhook and bird spear fragments. The obsidian cache in Area IV and concentration of chert and obsidian at the south-east corner of the square, also the comparatively large quantities of both stones recovered along the house east wall in Area III are all indicative of more than just random and accidental loss of these multi-purpose raw materials. It is interesting to speculate that the cache may once have been contained in a now vanished bag. The other concentrations almost certainly reflect working areas or, in the case of the house wall, perhaps storage or tidying habits as well.

The very large quantity of kokowai in Areas III and IV also has a bearing on the occupants' perception of this part of the site and the uses to which it was put. As Holdaway (1984) has pointed out, dry red ochre and ochre mixed with oil to form a paint (*kura*) was much the most commonly used colouring for a very wide variety of Maori purposes. Houses, canoes, pataka (elevated storehouses), posts, clothes and people might all be smeared or painted red on occasions. Interestingly red appears to have been used by women for body colouring more commonly than it was by men (Holdaway 1984:117-119). Particular males, including fighting men and young chiefs and some older men, also used red ochre or *kura* for body colour on occasions (Holdaway 1984:122). Painting the body seems to have ceased by about the 1840s.

Holdaway went on to explore the use of ochre or *kura* paint on artefacts. He concluded that "The element which is common to all symbolic associations of the colour red is *tapu*" (Holdaway 1984:148). The use of red paint thus had significance at a number of interrelated levels relating to Shirres' (1982:47) partial definition of *tapu* as, "being with potentiality for power." The colour red thus communicated the need to beware — to behave carefully with prescribed forms of respect towards people and towards their buildings and other possessions. Prestige, pride and politics were all involved, as was the necessity of a commonly understood stage for social behaviour upon which human actors were always mindful of the mediation of cosmology and of the spiritual world.

At the north (front) and west side of the house working and waste disposal activities clearly post-date the house occupation. It is in the adjacent Area IV that we see more clearly the open ground which probably once extended fully across the front of the house, and the use to which it was put. The hard trodden surface in the south-west corner of the square was essentially the same as that encountered within the house itself (Fig. 32). Beyond were two amorphous pits in which nesting lenses of charcoal, burnt clay and mixed fill show that fires were lit within. The pits are very different from *hangi* scoops found elsewhere in the site. Almost certainly they mark fireplaces for warming or open cooking fires depicted, for example, by Earle (Murray-Oliver 1968:117). Nearby a scatter of postholes indicates the site of a roofed building or fence which marked the edge of the open ground before the Area III house. The very large quantity of obsidian and chert flakes, and artefacts which included pieces of two different patu muka, confirm the importance of this area as a work place, in part

confirming Bank's comment that, "... the porch seems to be the place for work, and those who have not room there must set upon a stone or the ground in its neighbourhood" (Beaglehole 1962 II:18).

Fifteen to twenty metres north of Areas III and IV, Area V, like I and II, has evidence only of cooking and waste disposal. Thus the variety of necessary domestic and industrial activities at Raupa were undertaken in different places in the settlement both for obvious practical reasons and more complex principles concerning amongst other things the required stage for social interaction and a proper relationship between the sacred and the profane in Maori life.

Work at Raupa may be added to a history of pa excavations which have taken place over several decades. Many of these have been on too limited a scale to provide information on settlement plan, but there are notable exceptions. Peter Bellwood in 1968-70 excavated 400 m², or approximately 20%, of a Waikato swamp pa at Mangakaware (Bellwood 1978:15). The Mangakaware site was similar to Raupa in its swamp location and level occupation area, but not in scale as Raupa was ten times larger in area. Bellwood uncovered evidence of complex defences behind which houses and other buildings encircled an open space *ca.* 45 x 25 m. The arrangement is similar to that depicted by Angas at Te Wherowhero's pa, Kaitote, near Taupiri on the Waikato River (Angas 1846, pl. 15). A similar situation may have existed at Raupa, not enough has been excavated to be certain, or there may have been a very different arrangement with large dwelling houses scattered throughout the pa separated by other buildings and by cooking, storage and waste disposal areas. It is possible to regard this as a multiplication of the basic arrangements, perhaps made necessary by the presence of large numbers of people or several related tribal groups.

Most pa in New Zealand are topographically more complex than swamp pa of the Hauraki Plains and Waikato. Examples are Tiromoana in Hawkes Bay (Fox 1978) and the Pouerua 'Field School Pa', inland Bay of Islands (Green & Phillips 1986). Tiromoana is a ridge-end pa defended by three transverse ditches which protect a large outer enclosure and an inner strongpoint (Fox 1978:2). In the innermost citadel there was little level ground for surface buildings or open space among numerous raised-rim kumara storage pits on narrow terraces. Outside the defensive ditch which cut off this area a large house was sited strangely across the narrow ridge top. Beyond was an extensive area within the third and outer ditch which may have provided open space for formal and informal community activities.

The Field School Pa was essentially similar in basic organisation. It was close to the enormous volcanic cone pa of Pouerua which may have provided a focus for at least some important community occasions demanding space within and in front of houses. Nonetheless, as at Tiromoana there is a marked contrast between an inner strongly defended citadel, this time of confined terraces with little evidence of food storage, and an outer area of larger terraces and open ground to provide what was not least space for a formal social arena (see Green & Phillips 1986:33).

At many pa topography was a factor in the design of social and activity spaces. At Raupa, however, as at other single level defended settlements this was not the case.

Perhaps it is at pa such as these that we will learn of the fundamental requirements of settlement plan which were worked out at more difficult sites as the shape of the land allowed.

The house

In 1971-72 a rectangular Maori dwelling radiocarbon dated to the 12th century was excavated at an undefended settlement site in the Moikau valley, Wairarapa (Prickett 1979). In the analysis it was argued that identification and interpretation of this building depended upon the essential conservatism of the form and, more than that, on the persistence of social and symbolic ideals which relate to the so-called wharepuni form (Prickett 1982). Since then Newman (1989:17) and others have argued that we should not be too rigid in our identification of houses and that there was a variety of traditional house forms, as indeed archaeology has shown. Nonetheless the rectangular house with porch at the front, internal hearth and small door is a useful model for archaeologists.

The wharepuni model is essential in the interpretation of the Raupa evidence. Here the building was not complete. Clearly it was rectangular and we are able to infer its dimensions from available information, but there is no hearth apparent, nor door. It is possible that a porch is marked by the slight angle near the north end of the east side wall. It was probably not the largest house at Raupa, as I have suggested, but it is a building big enough to satisfy Marsden's comment regarding large houses. Something of the manner of its use can be inferred from a great deal of 18th and 19th century historical observation (Prickett 1982). Houses of this form provided a living space and a symbolic structure that secured people within their natural and spiritual worlds. Almost certainly this was a building which was at once a dwelling, a guest house, and a focus of activity and pride for at least part of the Raupa community.

Such a house also provided space for mundane activities such as that relating to the large numbers of chert and obsidian pieces found in Area III. Even more stone material was found outside the front of the house in Area IV, but within the building too was clear evidence of the making of sharp-edged cutting and scraping tools (the core pieces show that tool preparation took place here) and more importantly the use of these tools in fibre and perhaps wood work as well. The patu muka pieces in Area IV show that muka, or prepared flax fibre, was made here; sharp cutting knives especially of obsidian quality were crucial in the manufacture of muka and of resulting garments.

The concentration of chert and obsidian at the sides of the house has been remarked upon and the suggestion made that this reflects the storage of stone along the walls of the house or perhaps the need to keep the centre of the house swept clean of sharp flakes which might cut bare feet. The distribution may also relate to prescribed places within the house for the people who worked here with sharp flake tools. Interpretation of stone flake distribution in the Moikau house (Prickett 1979:45) depended upon historical accounts of social and sexual divisions of space within the wharepuni. At Raupa the evidence is not straightforward: chert flakes are concentrated along the right side (looking out) as at Moikau, but obsidian is abundant at both side walls and across the centre and front of the building. Only at the rear is

it uncommon. Historical evidence indicates that the right side and rear of houses were women's places and it is here therefore that one would expect to find stone flakes resulting from fibre work which was carried out by women.

Detailed measurements of the house walls have already been discussed, as has the predominance of kauri among surviving post timbers. The kauri was almost certainly obtained from foothills and ranges to the east in clear preference to kahikatea and possibly rimu which were the tall timber trees of the adjacent levees and plain. Matai and totara, other large podocarps with straight easily worked timber, were less important. Kahikatea appears not to have been used at all in the house (but was made use of elsewhere at Raupa for the massive post in Area II). The posts were not of plank form as is the case for some excavated house posts (for example at Moikau, Prickett 1979:35; and Tiromoana, Fox 1978:25), but appear to have been round or near-round in cross-section.

Other than the posts there was little information on the architecture of the Raupa house. At the rear wall a second row of posts behind the main structural line at one side of the ridge-post suggests the holding in place of wall insulation despite this feature not occurring elsewhere. Behind the rear wall is a shallow trench filled with sand presumably designed to help keep water from soaking through to the house floor.

Economy

Among the more surprising results of the 1987 excavation was the discovery of a storage pit, almost certainly for kumara (*Ipomoea batatas*), in Area II. It has been remarked how close was the bottom of this pit to the underlying watertable, thus leaving little margin for error in the preservation of a root crop for which dampness would lead quickly to total loss. It is unlikely this was the only storage pit at Raupa. Perhaps the pit-shaped fill deposit shown in Phillips' (1986:103) area '2' section makes a second, especially as it was only a few metres from the 1987 pit and apparently shared the same orientation. The evidence for a bell-shaped storage pit at Phillips' area '3' is less convincing (Phillips 1986:102,104).

In his 1820 account Marsden describes, "... some small farms ... cultivated for potatoes" (Elder 1932:256). Whether these potatoes were in fact 'sweet potatoes' (kumara) or the recently introduced European potato is unclear. It is likely by this date that northern hemisphere food plants such as potato, turnips, cabbage, maize and squash were cultivated by the people of the Hauraki Plains as elsewhere in New Zealand (see Leach 1984). The natural levees of the plains would have provided ideal conditions for gardening close to the Raupa site.

The most numerous waste material from food consumption at Raupa is shell, as is the case in almost all New Zealand sites. Everywhere the vast majority of shell was pipi, with some cockle, *Macra* common in places, and a wide range of other shell represented, not all of them necessarily food waste. The three most common shells are all obtained from beaches or soft shores, almost certainly from the Firth of Thames ca. 40 km from the pa by the Waihou River. Also in the Firth of Thames are rocky shores with green mussel, *Cookia* and other species. Other rich marine resources are available

east of Raupa on the Bay of Plenty coast, but the Firth of Thames is more easily accessible by canoe transport especially when large quantities of shellfish and other such heavy items were involved.

Fish remains were few in number and variety. The most common was snapper, again probably from the Firth of Thames. Eagle ray, obtained from shallow sea and tidal river, was identified from Areas II, III and V. Other sea fish include gurnard, john dory, blue mackerel, trevally and kahawai. Kahawai, like eagle ray might also have been obtained in the lower reaches of the Waihou River. Almost certainly caught in the river is the yellow-eyed mullet from Area II, and eel of which one possible identification was made from among Area V material.

It would be reasonable to assume that fish would have been brought into the site in very considerable quantities as a diet staple. In the midst of a very large area of swamp and waterways eel was almost certainly of importance, as would have been snapper and other fish of the Hauraki Gulf.

The only bird bone was recovered from Area I. Pigeon and kaka would have been obtainable from forest stands on the plains or from the nearby ranges. Duck and banded rail are birds of swamp and fresh waterways.

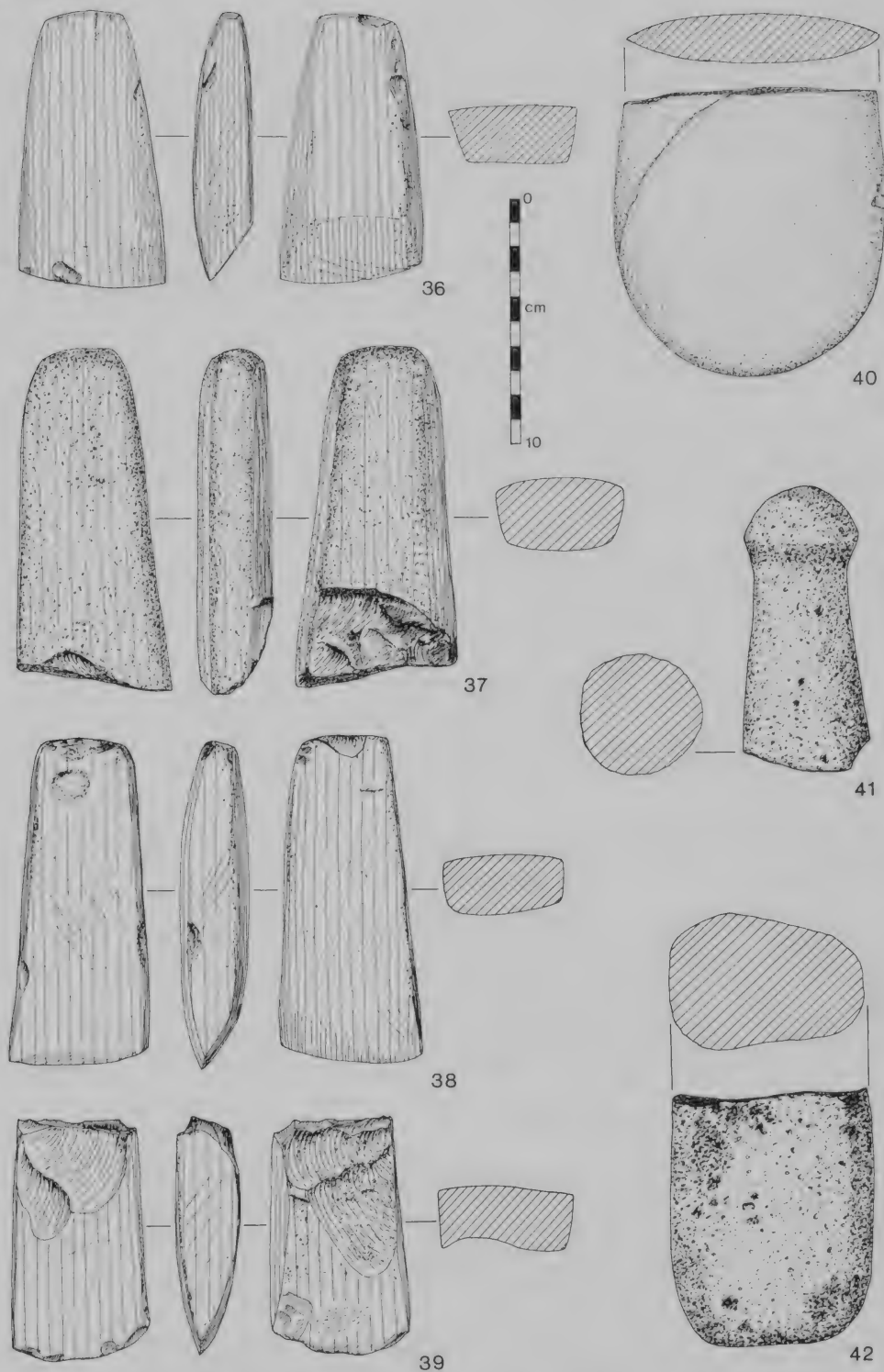
More important than fish and birds in terms of food quantity were mammals of which the most abundant remains are dog recovered from all five excavated areas. In addition to their importance as food, dogs provided essential resources for a class of prestige cloaks and for a variety of bone implements including needles and fishhooks. Other mammals represented in recovered midden remains include kiore, and sea mammal of dolphin and whale sizes. Pig bone from Areas I, II and III is a small indication of the often remarked importance of a food resource introduced in the 18th and early 19th century by European explorers and missionaries.

Fragmentary human bone was found mostly in Area III. Small quantities were identified from Area I and possibly Area V. Almost certainly this material was food waste — it was fragmentary, was in association with other midden material and clearly had been treated without respect. The burials in Area III which demonstrate much care and respect serve to emphasise the casual discard of other waste human bone.

Artefacts and stone material (Figs. 36-49)

It was a disappointment that over 200 m² of excavation at Raupa produced comparatively few artefacts. The ambition to give some archaeological context to the Oruarangi collections of which we know very little was thus not achieved. Nonetheless something was learned at Raupa of the material culture of a Hauraki Plains swamp pa at which many or all finds probably date from the 18th and early 19th centuries.

Adzes and adze fragments are all of the common rectangular, or rounded-rectangular, Duff (1956:166) Type 2B, form, the common adze of late pre-European sites, especially in the North Island. In this respect Raupa is little different from Oruarangi (see Fisher 1936; Golson 1959:55-56). Three of the four illustrated adzes (Figs. 36,37,39) are made of green greywacke, almost certainly of Waiheke Group

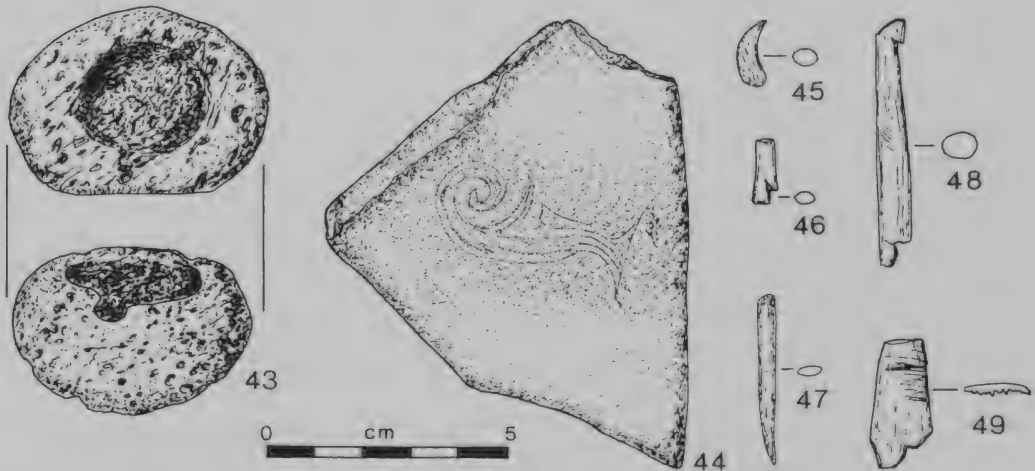


Figs 36-42. Raupa stone artefacts. 36. Adze, Area IV E1. 37. Butt end of adze, Area I E2. 38. Adze, Area I E2. 39. Blade end of adze, Area IV B3. 40. Patu onewa blade, Area III J6 and J10. 41. Patu muka handle, Area IV D5. 42. End of patu muka, Area IV C2.

material from the inner Hauraki Gulf islands (Rakino, Motutapu, Waiheke and Ponui) and the west side of the Firth of Thames (see Fig. 1). Two polished adze fragments from Areas I and IV are also of Waiheke Group greywacke. The remaining complete adze (Fig. 38) is of fine-grained pale grey basalt from the Tahanga, Coromandel Peninsula, source (see Fig. 1). At the Matatuahu site, Manukau South Head, Waiheke Group greywacke was the dominant raw material among late adzes of Duff Type 2B form (Prickett 1987:61, 63). The predominance of the same material among Raupa adzes is confirmation of the importance of this material.

Another significant item made of the same material is the patu onewa found in Area III (Fig. 40). Although highly polished surfaces present difficulties in stone identification it is likely there are many other weapons of the same material among northern North I collections. Green Waiheke Group greywacke was also identified among fire-cracked oven stones, the vast majority of which, however, almost certainly came from the nearby eastern ranges. Two patu muka pieces (Figs. 41,42) are, like the adzes, similar to Oruarangi examples, as is the apparently unused pumice pot (Fig. 43).

Almost all of 11.17 kg of obsidian recovered during the 1987 excavation came originally from Mayor I in the nearby Bay of Plenty (see Fig. 1). Small quantities were identified as having come from Waihi and even less from Whangamata. Clear grey obsidian may have originated at Taupo or Great Barrier I. Mayor I is the source of most obsidian found in New Zealand archaeological sites so it was not surprising to find it so dominant in Raupa less than 60 km away by land and water. All the 5.56 kg of chert almost certainly came from the nearby Coromandel and Kaimai Ranges.



Figs 43-49. Small pumice, stone and bone artefacts. 43. Pumice pot, Area IV C3. 44. Incised stone, Area IV D2. 45. Fishhook point, Area III J7. 46. Fishhook fragment, Area V D3. 47. Bone needle, Area I A5. 48. Bird spear fragment, Area III I7. 49. Tattoo chisel fragment, Area I D3.

Bone artefacts were very familiar. Fishhook (Figs. 45,46) bird spear (Fig. 48) and tattoo chisel (Fig. 49) fragments and an unfinished needle (Fig. 47) are identical to items among the much larger Oruarangi collection. As at Oruarangi, dog jaws were probably used for needles and 'Oruarangi' hook points. Fishing, birding, fibre working and tattooing are represented by the handful of bone artefacts. Tattooing is also likely to be represented by the incised stone (Fig. 44) from Area IV which may give a direct insight into the purpose to which tattoo chisels were put.

Towards a history of Raupa

At the opening of the discussion section is an outline of the settlement arrangement for the only occupation period which was fully uncovered throughout the five excavated areas. This was the last major occupation of Raupa and certainly relates to the early 19th century, perhaps restricted to the years immediately about 1820 for which we have Marsden's account. A reconstruction illustration of Raupa at the time of Marsden's visit is given in Fig. 50. this late occupation period is represented by Area I Levels III and IV, Area II Level III, Area III the house floor and environs, Area IV Level II and Area V Level II. Other occupation levels and evidence add to knowledge of the history of Raupa.

In Areas I, II, IV and V are earlier occupation levels. At Area V the occupation level immediately preceding the final Maori occupation is marked by hangi scoops and oven stones (Fig. 34), probably closely related in time and purpose to the final deposit of crushed shell midden and cooking waste. The same situation was evident in Area II where dark soil and shell midden, much of it crushed to show repeated mixing and shifting, was spread over the Level II cooking ovens.

At Area I two occupation levels preceded the final use of this part of the site for waste disposal. Levels I and II are both marked by postholes (Figs. 7,9). Level I was not fully excavated but the mostly small post and stakeholes suggest light roofed structures were first built here close to the bank above the Waihou River. Later (Level II) there was at least one very strongly built structure here, possibly roofed but more likely a lookout or fighting platform as I have suggested. If the big close-set posts are related to a stockade then they indicate renewed defences or a strengthening of existing defensive works here. The Level III dumping of midden in Area I indicates that this part of Raupa was still used at this late stage although no longer by defences or roofed structures. By Level IV there was little active use of this area for any purpose.

A similar sequence is apparent in Area II where the earliest occupation is marked by postholes (Figs. 14,15) and the later by cooking (Level II) and waste disposal (Level III). In Areas I and II there is a considerable change in the use to which these parts of the site were put from early to late levels. It is as if the built part of the site later diminished in size or was concentrated elsewhere within the 2 ha of ground behind the northern defensive lines. The later occupation of Areas I and II show this part of Raupa to be given over almost entirely to cooking and waste disposal on essentially open ground.

For cultural reasons, this image has been removed.
Please contact Auckland Museum for more information.

Fig. 50. Reconstruction of Raupa depicted in the late afternoon of 17 June 1820 when the Rev. Samuel Marsden and his party were welcomed to the settlement by the chief, probably Te Hikamate of Ngati Tamatera. Depiction of the visitors and host group is based upon Marsden's description. The size and orientation of the large house depend upon the 1987 archaeological evidence, as do the cooking area and storage pit at the right rear and the presence of pigs in the foreground. Through the gap in the stockade can be seen Mt Te Aroha.

At Area IV there was continuity between Levels I and II. Both have postholes to show that structures stood here. In Level II are firepits which are not associated with midden remains and thus may have been for warmth and social purposes connected to the nearby Area III house.

The Area III house itself was burnt down, after which part of the former house floor was used for cooking. Waste material, including human bone was discarded and trodden into the compact ground surface. It may be that the destruction of the house and the subsequent activities there were connected. Rihitoto (1893:111) in his land court evidence regarding the Nga Puhi attack on Raupa in the early 1820s indicated that the Nga Puhi were defeated. Perhaps there is evidence here to the contrary. Unless there was a subsequent attack or violent incident at Raupa about which we know nothing, increasingly unlikely in the years or decades after 1820, the Nga Puhi attack on Raupa may have been successful. Perhaps they burned down one or all of the great houses which so impressed Marsden and then feasted on their defeated enemies in the ruins of the pa. We cannot be certain of this but such a history would provide an economical use of the archaeological evidence.

Some time after Raupa was abandoned as a living place it was made use of as a burial ground or urupa. Such a sequence of events is known to have been common in many parts of New Zealand in the 19th century and in all probability occurred earlier as well. By this means important genealogical and spiritual connections would be maintained with ancestors and their living places.

The two Area III burials display different burial customs. In the case of Burial 1 the intact body was laid on its left side with knees drawn up to the chest (compare with Oppenheim 1973, opp.p.48). The other was a secondary burial of partly disarticulated bones. Both were in shallow pits less than 600 mm deep. Both burials were in all probability pre-Christian in their treatment of the dead; thus they date from the period between the abandonment of the site and the conversion of Hauraki people to Christianity in the middle years of the 19th century. Nor, it may be argued, were these the only burials in Area III. Near the rear wall of the house was a soft depression (Fig. 23) which was not investigated in 1987 for lack of time. Experience in the 1988 excavation showed that there was almost certainly a burial here, one of a number that occupied this part of Raupa and which represented an important use of the site after it was abandoned as a settlement in the third or fourth decade of the 19th century.

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REFERENCES

- ANGAS, G. F.
1846 *The New Zealanders Illustrated*. London, Thomas McLean.
- ANON
1884 Plan of roads through blocks Rawhitiroa, Parahamuti . . . Map no. 3421, Dept of Survey and Land Information, Hamilton.
- BEAGLEHOLE, J. C.
1962 *The Endeavour Journal of Joseph Banks 1768-1771*. Sydney, Angus and Robertson. 2 Vols.
- BEDFORD, S.
1985 A simplified classification for tin wax vesta matchboxes. *N.Z. Archaeol. Assn. Newsl.* 28:44-64.
- BELLWOOD, P.
1978 Archaeological research at Lake Mangakaware, Waikato, 1968-1970. *Otago University Studies in Prehistoric Anthropology*. 12:1-79.
- BEST, E.
1924 *The Maori*. Wellington, Polynesian Society. 2 Vols.
- BEST, S.
1980 Oruarangi Pa: past and present investigations. *N.Z. J. Archaeol.* 2: 65-91.
- DUFF, R. S.
1956 *The Moa-Hunter Period of Maori Culture*. Wellington, Government Printer. 400p.
- ELDER, J. R.
1932 *The Letters and Journals of Samuel Marsden 1765-1838*. Dunedin, Coulls Somerville Wilkie and A.H. Reed. 480p.

- FISHER, V. F.
 1934 The material culture of Oruarangi, Matatoki, Thames. 1. Bone ornaments and implements. *Rec. Auckland Inst. Mus.* 1:275-286.
 1935 The material culture of Oruarangi, Matatoki, Thames. 2. Fish hooks. *Rec. Auckland Inst. Mus.* 1:287-300.
 1936 The material culture of Oruarangi, Matatoki, Thames. 3. Stone implements and ornaments. *Rec. Auckland Inst. Mus.* 2:15-27.
 1937 The material culture of Oruarangi, Matatoki, Thames. 4. Musical instruments. *Rec. Auckland Inst. Mus.* 2:111-118.
- FOX, A.
 1978 Tiromoana Pa, Te Awanga, Hawke's Bay, excavations 1974-5. *Otago University Studies in Prehistoric Anthropology*, 11:1-72.
- GOLSON, J.
 1959 Culture change in prehistoric New Zealand. In, *Anthropology in the South Seas*, J.D. Freeman and W.R. Geddes (Eds). New Plymouth, Thomas Avery. Pp.29-74.
- GREEN, R. C.
 1963 A review of the prehistoric sequence in the Auckland Province. *N.Z. Archaeol. Assn Monogr.* 2:1-60.
- GREEN, R.C., and K.
 1963 Classic and early European Maori sites on the Hauraki Plains. *N.Z. Archaeol. Assn Newsl.* 6:27-34.
- GREEN, R.C., and C. PHILLIPS
 1986 Pouerua Project, Phase II: the fieldschool excavations at a stone walled pa, N15/224. *N.Z. Archaeol. Assn Newsl.* 29:29-40.
- HOLDAWAY, S.
 1984 Colour as a Symbol in New Zealand Prehistory. M.A. thesis in Anthropology, University of Otago, Dunedin.
- KELLY, L. G.
 1945 Tapuariki and Raupa. *J. Polynes. Soc.* 54:199-211.
- LEACH, H. M.
 1984 *1,000 Years of Gardening in New Zealand*. Wellington, Reed. 157p.
- MOORE, P. R., and J. COSTER
 1989 Waihi obsidian. *Archaeol. in N.Z.* 32:26-30.
- MURRAY-OLIVER, A.
 1968 *Augustus Earle in New Zealand*. Christchurch, Whitcombe and Tombs. 167p.
- NEWMAN, M.
 1989 Contact period houses from the Lake Rotoaira area, Taupo. *Archaeol. in N.Z.* 32:17-25.
- NICHOL, R. K.
 1980 Analysis of shell material from Oruarangi, N49/28. *N.Z. J. Archaeol.* 2:93-98.
- OPPENHEIM, R. S.
 1973 *Maori Death Customs*. Wellington, Reed. 138p.
- PHILLIPS, C.
 1985 Report on the Preliminary Excavations at Raupa Pa N53/37, and Waiwhau Village N53/198, Paeroa, January 1984. Unpublished report, Anthropology Department, University of Auckland.
 1986 Excavations at Raupa pa (N53/37) and Waiwhau village (N53/198), Paeroa, New Zealand, in 1984. *N.Z.J. Archaeol.* 8:89-113.
 1988 University of Auckland Field School excavations at Waiwhau, 1987. *N.Z. J. Archaeol.* 10:53-72.

PRICKETT, N. J.

- 1979 Prehistoric occupation in the Moikau Valley, Palliser Bay. In, Prehistoric Man in Palliser Bay, B.F. and H.M. Leach (Eds). *Bull. Nat. Mus. N.Z.* 21:29-47.
- 1981 The Archaeology of a Military Frontier: Taranaki, New Zealand, 1860-1881. Ph.D. thesis, Anthropology Department, University of Auckland.
- 1982 An archaeologists' guide to the Maori dwelling. *N.Z. J. Archaeol.* 4:111-147.
- 1987 The Brambley collection of Maori artefacts, Auckland Museum. *Rec. Auckland Inst. Mus.* 24:1-66.

RIHITOTO

- 1893 Hauraki Minute Book Vol.30; Waikato-Maniapoto Land Court (Paeroa 12 April 1893).

ROGERS, L. M.

- 1961 *The Early Journals of Henry Williams*. Christchurch, Pegasus Press. 524p.

SCHOFIELD, J. C.

- 1967 Sheet 3 Auckland (1st ed.). *Geological Map of New Zealand* 1:250000. Wellington, Dept. Sci. Ind. Res.

SHAWCROSS, F. W., and J. E. TERRELL

- 1966 Paterangi and Oruarangi swamp pas. *J. Polynes. Soc.* 75:404-430.

SHIRRES, M. P.

- 1982 Tapu. *J. Polynes. Soc.* 91:29-51.

SIMMONS, D. R.

- 1986 *Ta Moko*. Auckland, Reed Methuen. 183p.

TE RANGI HIROA

- 1966 *The Coming of the Maori*. Wellington, Maori Purposes Fund Board. 551p.

TEVIOTDALE, D., and H. D. SKINNER

- 1947 Oruarangi pa. *J. Polynes. Soc.* 56:340-356.